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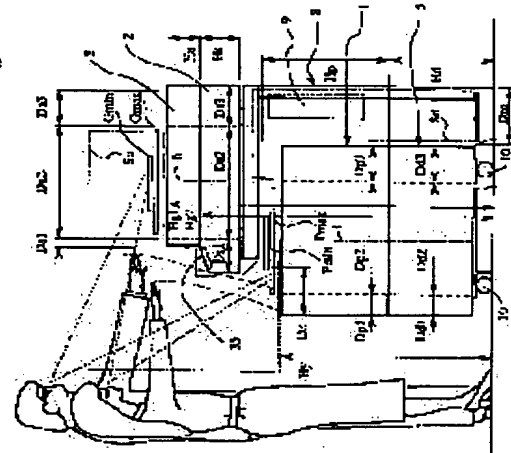
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## (54) IMAGE-FORMING SYSTEM

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide an image-forming system, capable of controllably performing the improvement of the handleability of the image-forming system, the improvement of the installation easiness of the image-forming system and the effective utilization of office space due to the reduction of floor occupying area, by adjusting the mutual positions of a printer device, and to provide a scanner device or regulating the mutual positions of the printer device and the scanner device.

**SOLUTION:** This image-forming system is equipped with a printing function part 1 for printing images on paper, an original read function part 2 for reading the image by scanning an original and a support body 8, on which the reading function part 2 is placed, so that the reading function part 2 is positioned above the printing function part 1. In the system, the printing function part 1 can be relatively moved to the reading function part 2 placed on the support body 8. Then, the system is equipped with a locking means for regulating the relative position of the read function part 2 to the printing function part 1 in an access direction, by locking a part outside an access space below the printing function part 1 on the lower part of the support body 8.



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**CLAIMS**

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[Claim(s)]

[Claim 1] The list function section which prints an image in a form, and the manuscript reading function part which scans a manuscript and reads an image, It has the base material which lays the above-mentioned manuscript reading function part so that the above-mentioned manuscript reading function part may be located above the above-mentioned list function section. The above-mentioned list function section sets to a movable image formation system relatively to the above-mentioned manuscript reading function part in the condition of having been laid in the above-mentioned base material. The image formation system characterized by having stopped the part outside the access space of the above-mentioned list function section lower part in the above-mentioned base material lower part section, and having a stop means to regulate the relative position in the access direction of the above-mentioned manuscript reading function part to the above-mentioned list function section.

[Claim 2] The above-mentioned stop means is an image formation system according to claim 1 characterized by the ability to change the relative stop location of the access direction of the above-mentioned list function section and a manuscript reading function part.

[Claim 3] The image formation system according to claim 1 or 2 characterized by preparing the specification-part material for avoiding the collision with the above-mentioned list function section and other function parts in the migration direction of the above-mentioned list function section while the above-mentioned list function section and the above-mentioned base material, and when other function parts are arranged.

[Claim 4] An image formation system given in claim 1 characterized by forming a discharge means to make a stop with the above-mentioned base material and the list function section by the above-mentioned stop means cancel in the upper part of the above-mentioned base material thru/or any 1 term of 3.

[Claim 5] An image formation system given in claim 1 characterized by establishing a discharge means to make the above-mentioned list function section or the above-mentioned base material with which the koro for migration is prepared for any of the above-mentioned list function section or the above-mentioned base material being, and the above-mentioned koro for migration is prepared cancel a stop with the base material and the list function section by the above-mentioned stop means thru/or any 1 term of 3.

[Claim 6] An image formation system given in claim 1 characterized by establishing an operational discharge means on foot for the above-mentioned list function section having the koro for migration, and canceling a stop with the above-mentioned base material of the above-mentioned stop member, and the above-mentioned list function section to said base material side thru/or any 1 term of 3.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the image formation system excellent in expandability.

[0002]

[Description of the Prior Art] If it is in the image formation system which constitutes a compound machine equipped with a copy function, a facsimile function, and printer ability by the rapid spread of personal computers in recent years, the printer has shifted to the gestalt of the base from the gestalt which used the conventional copying machine as the base.

[0003] That is, in the case of the conventional image formation system, the optional equipment for the improvement in functional of after-treatment equipment, a manuscript automatic transferring machine, a mass tray, a multistage feeding desk, etc. was attached in the body of a copying machine which constituted the scanner section, the image formation section, and the feed section as one equipment if needed.

[0004] However, it is necessary to connect various equipments, such as a personal computer (henceforth a personal computer), a server, a scanner, and a printer, on a network, and to use each equipment efficiently according to a use application in office in recent years.

[0005] Not the image formation system that made the subject a body of a copying machine which was described above but the body of a copying machine for this reason, in the scanner section and the printer section Or it is the separate main module equipment (since it is the module which serves as the base of an image formation system for the purpose of reading or printing an image) about each which divided the function into the scanner section and the printer section which built in the feed section. As having called the main module equipment, it has come to form an image formation system combining these main module equipments.

[0006] Moreover, positioning as equipment for corresponding to various demands of a user densely is made, and the optional equipment from the former by which after-treatment equipment, the manuscript automatic transferring machine, the mass tray, the multistage feeding desk, etc. were treated as attachment for the improvement in functional has also come to be positioned as submodule equipment in this semantics to main module equipment like scanner module equipment or printer module equipment.

[0007] If it is in an image formation system, such the Lord and submodule equipment are put together and used increasingly if needed. in addition, henceforth -- scanner module equipment -- scanner equipment and printer module equipment -- printer equipment -- as ... module equipment -- a module -- removing ... equipment is called.

[0008] By the way, various requests as follows are made in the office space where the image formation system which consisted of such each module equipment is used.

[0009] \*\* In order to use office space more efficiently, the image formation system with a small floor occupancy area is demanded.

[0010] \*\* Even when scanner equipment and printer equipment are respectively independent (reading an image about scanner equipment) About printer equipment, printing of the transmit data from FAX or a personal computer etc., Although the image formation system which can operate (it reads with scanner equipment and prints with printer equipment) is demanded also in combination and it is accompanied by the increment in some floor occupancy area in this case, so that a function can be used more efficiently Printer equipment and scanner equipment are juxtaposed and each equipment is expected the image formation system with a separate person accessible to coincidence.

[0011] \*\* Even when submodule equipment etc. is attached and it complicates as a matter of course, a check by looking and removal of the form of a paper output tray are easy, user-friendliness is also good, and an image formation system with easy correspondence is desired also to troubles, such as jam processing.

[0012] The request to such an image formation system is received. To JP,5-219308,A The base material of scanner equipment is fixed to the printer equipment put on the multistage feeding desk. Furthermore, scanner equipment is constituted movable all around to the paper output tray which formed cross-joint-like the guide rail and energization means of scanner equipment in this base material, and was prepared in the crowning of printer equipment. In case the form on a paper output tray is removed, while making it scanner equipment not become obstructive, the floor space which an image formation system occupies is narrowed, and it can be made to perform a deployment of office space.

[0013] moreover, in JP,11-119497,A As opposed to the base material which equipped the cross direction with the installation base of a movable lower part to an upper installation base and an upper base material body Put scanner equipment on an upper installation base, put printer equipment on a downward installation base, and the upper part of printer equipment by fixing to a base material by the holddown member While reducing the floor occupancy area of an image formation system, he prevents the fall of the image accuracy of reading by the shake at the time of scanning actuation of scanner equipment, and is trying to remove the insecurity of the user by the shake of scanner equipment. Moreover, the maintenance of the laser scanner by heavens covering removal is made easy to pull out printer equipment ahead from directly under [ of scanner equipment ] with a movable installation base below, and to perform by demounting the holddown member which attaches printer equipment in a base material.

[0014] However, it is [ as opposed to / so that face removing the form of the paper output tray prepared in the crowning of printer equipment since it was the configuration of having arranged printer equipment directly under scanner equipment with the configuration of former above-mentioned JP,5-219308,A, and having reduced the floor occupancy area of an image-formation system more (request item of the aforementioned \*\*) and scanner equipment may not become obstructive / printer equipment ] made it being able to carry out all around in sulcus cruciatus and an elastic member the specified-quantity migration of the scanner equipment.

[0015] However, with such a configuration, in order to remove the form on a paper output tray, scanner equipment is resisted and pushed on the elastic force of an elastic member by hand of one of the two, it must become the actuation which removes the form on a paper output tray by the hand of another side, scanner equipment must be pushed at every removal to a form removal activity with the highest access frequency in an image formation system, and user-friendliness is hard to be called fitness.

[0016] Moreover, in order that scanner equipment may generally make possible read also of a book manuscript or the manuscript which sticks and does not fit automatic conveyance of a manuscript etc. Since the interior is equipped with the scan unit which carries out both-way migration to a manuscript, and reads a manuscript When scanning actuation of scanner equipment is performed, according to the inertia at the time of both-way migration of a scan unit Another problem of the image accuracy of reading falling or giving a user insecurity arises as the scanner equipment energized by the elastic member will shake towards both-way migration of a scan unit and is indicated by JP,11-119497,A.

[0017] In addition, although it is also considered that do not prepare such sulcus cruciatus and an elastic member, but \*\* also makes easy form removal on the paper output tray of printer equipment by enlarging the gap of scanner equipment and printer equipment, if it does in this way, the manuscript installation side of scanner equipment will become high, and the user-friendliness of scanner equipment will worsen for a short user. On the contrary, if it is going to correspond without making the manuscript installation side of scanner equipment high, the number of stages of a multistage disk unit will be lessened, the class of the part and paper size which can be set will decrease, and user-friendliness will become bad.

[0018] Moreover, since it was the configuration of putting printer equipment on the installation base of the lower part of a base material, in latter JP,11-119497,A, printer equipment needed to be lifted, it needed to put on the installation base, and workability was bad on the occasion of installation of an image formation system at it.

[0019] Moreover, since the paper output tray of printer equipment was located directly under scanner equipment, this technique was what a check by looking or removal of a form cannot perform easily. Here, in order to make a check by looking and removal of a form easy to perform, the configuration which takes large spacing of scanner equipment and printer equipment is considered, and the same problem as the case of a

\*\*\*\*\* No. 219308 [ five to ] official report follows.

[0020] Furthermore, since immobilization with printer equipment and a base material is performed, in case submodule equipments, such as after-treatment equipment, are arranged and the function of an image formation system is extended in the upper part of the near side face which the user of printer equipment accesses, a limit will be added to the space for an escape, the function of equipment is restricted or the free nature of a design falls.

[0021] Moreover, since it is the configuration that it cannot adjust by deciding the mutual location of the cross direction of printer equipment and scanner equipment except when pulling out printer equipment at the time of a maintenance, according to the ease over an activity which is different by each user, a fine setup cannot do the easy feeling of the removal sensed in case a user removes a form from the paper output tray of a printer crowning etc.

[0022] Moreover, in the condition that printer equipment was ahead pulled out at the time of a maintenance, in spite of being in a condition usable as scanner equipment itself, since printer equipment occupies space for a user to access scanner equipment, the problem that scanner equipment cannot be used is also produced.

[0023] Furthermore, since movement of the printer equipment at the time of being ahead pulled out for a maintenance of printer equipment, or being returned gets across to scanner equipment as an impact through a base material, it will give an unnecessary impact to scanner equipment and tends to cause failure.

[0024] On the other hand, printer equipment is carried on a multistage feeding desk with the koro, and while the scanner equipment which rode on susceptor (the inside of an official report rack 2) in the upper part is arranged, the image formation system which has arranged the automatic double-sided transport device which is submodule equipment to the right lateral of printer equipment is indicated by JP,9-297440,A.

[0025] With such a configuration, since printer equipment is settled under the scanner equipment, the floor space which an image formation system occupies can be made small (request item of the aforementioned \*\*). Moreover, since the BURINTA equipment and scanner equipment side is separated, printer equipment and scanner equipment can be juxtaposed if needed, and people become accessible at coincidence at printer equipment and each scanner equipment (request item of the aforementioned \*\*).

[0026] Moreover, jam processing is also easy by pulling out printer equipment from the bottom of scanner equipment. And it is easy to perform removal of the form from a paper output tray by setting appropriately the mutual location of the cross direction of printer equipment and scanner equipment so that it may be easy to remove the form on the paper output tray of a printer equipment crowning, or so that the form on the paper output tray of printer equipment \*\*\*\* may be legible (request item of the aforementioned \*\*).

[0027] As [ give / a user / vibration by the shake at the time of scanning actuation of scanner equipment gets across to a printer equipment side, and / moreover, / since the printer equipment and scanner equipment side is separated / the image accuracy of reading does not fall or / by the shake of scanner equipment / insecurity ] (request item \*\*)

[0028] As [ get across / since it is the configuration that printer equipment and scanner equipment are separable / furthermore, / to scanner equipment / the impact of migration of printer equipment ] (request item \*\*)

[0029]

[Problem(s) to be Solved by the Invention] However, with the configuration of a \*\*\*\*\* No. 297440 [ nine to ] official report, since there is no member which specifies the mutual location of the printer equipment carried on the multistage feeding desk and the scanner equipment attached on susceptor, a mutual location will change simply.

[0030] For this reason, for example, at first so that it may be easy to remove the form on the paper output tray of the printer equipment nape Or even if he is trying for the mutual location of the cross direction of printer equipment and scanner equipment to become suitable so that the form on the paper output tray of a printer equipment crowning may be legible gradually -- the mutual location of printer equipment and scanner equipment -- a \*\*\*\* intermediary -- the end -- Since become the physical relationship which neither a check by looking of the form on a paper output tray nor removal can carry out easily, the floor occupancy area of an image formation system serves as size unnecessarily or printer equipment is located too much ahead, it is hard coming to use scanner equipment.

[0031] Moreover, since there were no criteria for adjusting although a user adjusts the mutual location of the

cross direction of printer equipment and scanner equipment, it means not understanding immediately how much it should be made, but saying that it is decided that it will be the sheep of trial-and-error, and had become what has bad user-friendliness. That is, the configuration which can regulate the mutual location by the side of scanner equipment and printer equipment is needed for an image formation system (request item \*\*).

[0032] However, it is not the flume thing which should just prepare the member which only regulates the mutual location by the side of scanner equipment and printer equipment here. that is, expandability prevents by having established a means to regulate both the \*\* s location -- having -- \*\*\*\* -- it is bad. It must be the configuration which adds to a certain image formation system further now, and can perform the escape of a function variously.

[0033] \*\* It is desirable for the mutual location of printer equipment and scanner equipment to be adjusted.

[0034] On the other hand, apart from the above, in such an image formation system, in order to use scanner equipment and each printer equipment efficiently on a network, the control section which had CPU in each equipment is prepared, and it has the composition that this system works because between these control sections communicates mutually.

[0035] Therefore, it is needed that they will be the configurations that it can respond easily for these and promptly since various these control sections prepared in each equipment correspond to the control program for corresponding to the additional equipment of page memory and the printer of a version which hard-disk-equips and is different, the software of the image processing revised, etc. if that from which a specification differs exists and scanner equipment is taken for an example in order to work efficiently on a network. Therefore, the control section of scanner equipment tends to increase thickness.

[0036] However, on the relation arranged above printer equipment, if thin shape-ization of scanner equipment tends to arrange an above-mentioned control section inside the airframe of scanner equipment, or a case required therefore in order to make operability good, it will become difficult to thin-shape-ize scanner equipment. Moreover, since the exposure lamp for manuscript exposure having especially scanner equipment generates heat, the interior of scanner equipment becomes an elevated temperature considerably. Therefore, where a control section is built in, in order to separate a heat source from a control section, it becomes bulky inevitably and thin shape-ization cannot be attained.

[0037] Then, the applicant for this patent has proposed previously the configuration which attaches the control section of scanner equipment in a scanner rack. A scanner rack is equipped with such a control section of scanner equipment, and where printer equipment is settled in a scanner rack, when printer equipment has a possibility of colliding with a scanner control section, the mutual approach location limit of the printer equipment and scanner control section serves as important conditions, when setting up the range of the stop location of printer equipment and scanner equipment (request item \*\*). That is, the problem on the layout of the ability of printer equipment to be made approaching a scanner control section to what extent (after securing user-friendliness) must be solved on actuation in human engineering that there is nothing inconvenient in any way.

[0038] Enable adjustment of the mutual location of printer equipment and scanner equipment, or the purpose is regulating the mutual location of printer equipment and scanner equipment, and is to offer the image-formation system which can perform a deployment of the office space by improvement in the user-friendliness of an image-formation system, improvement in the installation ease of an image-formation system, and reduction of floor occupancy area etc. integrative, accomplishing this invention in view of the above-mentioned technical problem.

[0039]

[Means for Solving the Problem] This invention is equipped with the following configurations as above-mentioned The means for solving a technical problem.

[0040] (1) The list function section which prints an image in a form, and the manuscript reading function part which scans a manuscript and reads an image, It has the base material which lays the above-mentioned manuscript reading function part so that the above-mentioned manuscript reading function part may be located above the above-mentioned list function section. The above-mentioned list function section sets to a movable image formation system relatively to the above-mentioned manuscript reading function part in the condition of having been laid in the above-mentioned base material. It is characterized by having stopped the part outside the access space of the above-mentioned list function section lower part in the above-mentioned base material

lower part section, and having a stop means to regulate the relative position in the access direction of the above-mentioned manuscript reading function part to the above-mentioned list function section.

[0041] In this configuration, first, it dissociates, it is the configuration that the list function section is settled in the bottom of a manuscript reading function part, and to the manuscript reading function part in the condition of having been laid in the base material, since the list function section is a movable configuration relatively, a manuscript reading function part and the list function section may satisfy the request item of the aforementioned \*\* - \*\*.

[0042] And by having a stop means further and stopping the list function section and a base material with a stop means, since the relative position of the access direction of the list function section and a manuscript reading function part is controllable, the request item of the aforementioned \*\* can be satisfied and the technical problem in JP,9-297440,A can be solved.

[0043] And a stop means can also satisfy the request item of the aforementioned \*\* here, without it seeming that expandability is checked by having established a means to have stopped the lower part outside the access space of the list function section, and the lower part section of a base material, and to regulate a mutual location.

[0044] In addition, as the above-mentioned list function section, there is combination of the printer equipment simple substance equipped with the feed device, for example or printer equipment, and feed equipments, such as a multistage feeding desk. Moreover, as a manuscript reading function part, there is a scanner rack as scanner equipment and a base material.

[0045] (2) The above-mentioned stop means is characterized by the ability to change the relative stop location of the access direction of the above-mentioned list function section and a manuscript reading function part.

[0046] The height of the back of the user who uses an image formation system etc. needs to adjust the mutual location of the list function section and a manuscript reading function part. According to the above-mentioned configuration, since a stop means is the configuration which can adjust a mutual location, the request item of the aforementioned \*\* is satisfied and the effectiveness which does so by the ability specifying a mutual location is acquired much more effectively compared with the configuration which cannot perform adjustment of a mutual location.

[0047] (3) It is the question of the above-mentioned list function section and the above-mentioned base material, and when other function parts are arranged in the migration direction of the above-mentioned list function section, it is characterized by preparing the specification-part material for avoiding the collision with the above-mentioned list function section and other function parts.

[0048] Since according to this configuration the location of the list function section to other function parts is regulated and a collision is prevented with a regulation means, request item \*\* can be satisfied so that the list function section may not collide with a control section for example, as a configuration which attached the control section of scanner equipment in the tooth-back location of the list function section in a base material.

[0049] (4) It is characterized by forming a discharge means to make a stop with the above-mentioned base material and the list function section by the above-mentioned stop means cancel in the upper part of the above-mentioned base material.

[0050] Since a discharge means to cancel the stop condition of a stop means was formed in the upper part of a base material according to this configuration, it is easy to carry out discharge actuation, is easy to carry out adjustment of the mutual location of the list function section and a manuscript reading function part, and excels in operability.

[0051] (5) It is characterized by establishing a discharge means to make the above-mentioned list function section or the above-mentioned base material with which the koro for migration is prepared for any of the above-mentioned list function section or the above-mentioned base material being, and the above-mentioned koro for migration is prepared cancel a stop with the base material and the list function section by the above-mentioned stop means.

[0052] Canceling a stop condition is the case where the side which moves needs to be moved. Therefore, since it can move to migration actuation at the same time it canceled if a discharge means is formed in the side to which it is made to move like this configuration, operability is good.

[0053] (6) It is characterized by establishing an operational discharge means on foot for the above-mentioned list function section having the koro for migration, and canceling a stop with the above-mentioned base material

of the above-mentioned stop member, and the above-mentioned list function section to said base material side. [0054] Since discharge of a stop means can be performed with foot in the condition of having held the list function section by hand according to this configuration, workability is good.

[0055]

[Embodiment of the Invention] An example of the image formation system applied to the operation gestalt of this invention at drawing 1 - drawing 4 is shown.

[0056] The transverse-plane (it saw from access) sectional view of the image formation equipment with which drawing 1 constitutes this image formation system, and drawing 2 are [ the side elevation and drawing 4 of the front view and drawing 3 ] the A-A line view sectional views of drawing 2 .

[0057] In this system, it connects and printer equipment 1 of the multistage feeding desk [ scanner equipment 2, the automatic manuscript transport device (ADF) 3, and ] 5 is in a nucleus. With the automatic manuscript transport device 3 arranged in the upper part, scanner equipment 2 is supported by the scanner rack 8, and is arranged above printer equipment 1 and sheet after-treatment equipment 4.

[0058] Moreover, the control section of scanner equipment 2 is separately prepared independently as a scanner control unit 9, and the scanner control unit 9 is attached in the scanner rack 8 (tie-down plate 85) of a location for which it comes to the tooth back of printer equipment 1 where the printer equipment 1 laid in the multistage feeding desk 5 is settled in the scanner rack 8 (refer to drawing 3 ).

[0059] Here, each module equipment is explained briefly first.

[0060] (Printer equipment) From the first, the record output of the image into which printer equipment 1 was read with scanner equipment 2 will carry out the record output of the image data from this external connection device, if image processing systems, such as a personal computer, are connected through a network etc.

[0061] The centering on photo conductor drum 100 electrophotography [ equipment / 1 / printer / right-hand side / within the body of equipment / abbreviation central ] process section is arranged. When it explains briefly, around the photo conductor drum 100 The electrification roller 101 which electrifies a photo conductor drum front face in homogeneity, and the light-scanning unit 102 which scans a light figure to photo conductor drum lifting charged in homogeneity, and writes an electrostatic latent image in it, The development unit 103 which reproduces with a developer the electrostatic latent image written in by the light-scanning unit, The imprint unit 104 which imprints the image by which storage reappearance was carried out at photo conductor drum lifting on record material, Sequential arrangement of the cleaning unit 105 which makes it possible to remove the developer which remained to photo conductor drum lifting, and to record a new image on photo conductor drum lifting, the electric discharge lamp unit (illustration abbreviation) which removes the charge of a photo conductor drum front face is carried out.

[0062] The record material feed zone 110 by which interior was carried out into printer equipment 1 is arranged at the printer equipment 1 bottom. The image by which sequential supply of the record material by which separation supply was carried out one sheet at a time from this record material feed zone 110 was carried out between the photo conductor drum 100 of the electrophotography process section and the imprint unit 104, and record reappearance was carried out on the photo conductor drum 100 is imprinted. In addition, supply of the record material to this record material feed zone 110 is performed to the transverse-plane side of printer equipment 1 by pulling out the record material hold tray 111. Moreover, the printer jam processing door 27 and the printer waste heat opening 28 (refer to drawing 3 ) are formed in the side face of the body of equipment.

[0063] The record material sent from the multistage feeding desk 5 grade currently prepared as a peripheral device is accepted in the inferior surface of tongue of printer equipment 1, and extended record material acceptance opening for carrying out sequential supply toward between the photo conductor drum 100 of the electrophotography process section and the imprint units 104 is prepared in it. The fixing unit 106 is arranged above the electrophotography process section, the record material by which the image was imprinted is accepted one by one, heating fixing of the developer imprinted on record material is carried out, and record material is discharged out of equipment. The record material on which the image was recorded is discharged by the discharge section (sheet after-treatment equipment, in this case discharge tray) 4 of the top face of printer equipment 1.

[0064] The process control unit (PCU) substrate which controls an electrophotography process in the vertical space section of the light-scanning unit 102, A predetermined image processing is performed to the printer control section 106 which contained the interface substrate which accepts the image data from the equipment



outside, and the image data accepted from the interface substrate. The image control section 107 which contained the image control unit (ICU) substrate for carrying out scan record as an image by the light-scanning unit, these various substrates, the power supply unit 108 which supplies power to each unit are arranged.

[0065] Moreover, submodule configuration space for the field 34 which 6 showed the printer waste heat style to which a wall surface and an arrow head 29 are emitted from the printer waste heat opening 28, and was surrounded with the alternate long and short dash line in drawing 2 thru/or drawing 4 to arrange sheet after-treatment equipment etc., and the field 39 surrounded with the alternate long and short dash line show the jam processing use space when opening the printer jam processing door 27 and the desk jam processing door 30, and performing jam processing. Moreover, in 45 shown with an alternate long and short dash line in drawing 4, the minimum form width of face and 47 show the crevice for form grasping, and, as for a form conveyance center and 46, 48 shows the delivery side after the completion of record.

[0066] (Multistage feeding desk) The multistage feeding desk 5 is an external record material feed zone, it holds record material, separates one record material held at a time, and supplies it toward the record material discharge section 52 prepared in this unit body 51 top face. The laminating of the record material hold tray is carried out to three steps, and inside the unit body 51, the record material hold trays 53 and 54 which held the record material for which it asks at the time of operation, or 55 is chosen alternatively, and operates in it.

[0067] Supply of the record material to each record material hold trays 53, 54, and 55 is performed to the transverse-plane side of this unit body 51 by pulling out the record material hold trays 53, 54, and 55. Moreover, the desk jam processing door 30 is formed in the side face of the unit body 51 (refer to drawing 3). In addition, although this explanation explains as equipment with which the laminating of the three record material hold trays 53, 54, and 55 was carried out, the multistage feeding desk 5 has the thing of various formats, such as what consists of the record material feed zones and the record material discharge sections which have at least one or a record material hold tray beyond it.

[0068] Printer equipment 1 is laid on this multistage feeding desk 5, and is united with the multistage feeding desk 5. Sheet after-treatment equipment 4 is also laid and unified on this multistage feeding desk 5.

[0069] While the koro 10 for migration is formed, the stop section 20 (refer to drawing 7 (A)) as a stop means stop the multistage feeding desk 5 to the scanner rack 8 in an operation with the stop hole 87 (refer to drawing 5) established in the scanner rack 8 that the relative position of the scanner equipment 2 and the printer equipment 1 which are the description of this invention should be regulated is formed in the bottom of the multistage feeding desk 5 so that it may mention later.

[0070] (Automatic manuscript transport device) The automatic manuscript transport device 3 conveyed the manuscript \*\*\*\*(ed) on the manuscript set tray 15 toward the manuscript installation base 7 top, and is equipped with a manuscript conveyance means 17 to discharge the manuscript after a scan on the manuscript taking-out tray 16. Moreover, it rotates up by using an equipment back side as the supporting point, and it is constituted so that the near side of equipment may open, so that the manuscript of the sheet object in which automatic supply is impossible may be laid on the manuscript installation base 7 and can be scanned.

[0071] (Scanner equipment) the automatic read mode which scanner equipment 2 supplies the manuscript of a sheet object automatically by the automatic manuscript transport device 3, carries out a sequential exposure scan one sheet at a time, and reads a manuscript image, and the manuscript of a book object -- keeping silence -- by the automatic manuscript transport device 3, the manuscript of the sheet object in which automatic supply is impossible was set by manual actuation, and it has the manual read mode which reads a manuscript image.

[0072] And an exposure scan is performed in the 1st scan unit 11 and the 2nd scan unit 12 which move mutually the image of the manuscript set on the transparent manuscript installation base 7 along the manuscript installation base 7 by predetermined rate relation. By leading with the optic of a mirror or image formation lens 13 grade, and carrying out image formation on an optoelectric transducer 14 As shown in 0 outputted after changing a manuscript image into an electrical signal, drawing 2, and drawing 3, a control panel 35 is formed in the upper part by the side of access of the body of equipment, and the scanner waste heat opening 36 is established in the side face of the body of equipment. In addition, 37 (arrow head) shows a scanner waste heat style.

[0073] (Scanner rack) The perspective view of the scanner rack (base material) 8 which supports scanner equipment 2 to drawing 5 is shown. A tooth back is the structure opened wide and this scanner rack 8 becomes a transverse plane and a both-sides side list from square pipe steel. It is formed in the shape of [ rectangular ] a

frame, and the support arms 82 and 82 for scanner support are attached in the up both sides of this frame 81, and the rack top plate 83 is attached in them by that tooth-back side between both this support arm 82 and 82. The both-sides section is bent and, as for the rack top plate 83, the bending section is being fixed by the screw stop to the support arms 82 and 82.

[0074] Crevice 84 -- containing the guide peg (illustration abbreviation) by which protrusion formation was carried out is formed downward in the base of scanner equipment 2, and scanner equipment 2 will be supported by the support arm 82 in the state of installation stable on both the support arms 82 and 82 by making the guide peg of scanner equipment 2 insert in each crevice 84.

[0075] Moreover, the tie-down plate 85 for attaching in a rack 8 the scanner control unit 9 which is the control section of scanner equipment 2 is attached in the above-mentioned frame 81 which constitutes the tooth back of the scanner rack 8. Although this tie-down plate 85 consists of a sheet metal with which the both-sides section was bent, it is inserted in in a frame 81 and that both-sides section is fixed by \*\*\*\*\*, if that fitting location is in a frame 81, it can be changed freely.

[0076] Two support guide pegs 86 and 86 prolonged horizontally are attached in the lower part of the above-mentioned frame 81. And although later mentioned in a detail, two or more formation of the stop hole 87 - for regulating the mutual location of the printer equipment 1 and the scanner equipment 2 which are the description of this invention is carried out at these support guide pegs 86 and 86.

[0077] Furthermore, in case printer equipment 1 is contained, the lower tooth back of the multistage feeding unit 5 is contacted, and the specification-part (it is made to stop) material 50 and 50 which regulates that migration in a just before [ the scanner control unit 9 ] location protrudes on these support guide pegs 86 and 86 so that it may not collide with the scanner control unit 9 (refer to drawing 3 ) prepared in that tooth back.

[0078] (Scanner control unit) The scanner control unit 9 with which another unitization of the scanner equipment 2 attached in the tooth-back side of the scanner rack 8 was carried out to drawing 6 is shown. As shown in this drawing, in the rectangular core box, the scanner control unit 9 is formed in the connection connector 91 with scanner equipment 2, the connection connector 92 with printer equipment 1, and the connection connector 93 with a network in nothing and its end side, and the electric power switch 94 original with a scanner control section, the throttle 95 for memory extension, and the opening 96 for hard disk extension are formed at other end faces.

[0079] In the image formation system constituted as mentioned above, since the scanner control unit 9 by which another unitization was carried out was considered as the configuration connected by the connector and the tie-down plate 85 of the scanner rack 8 was made to support it, \*\*\*\*\* thin shape and miniaturization of scanner equipment 2 are attained.

[0080] Moreover, first, since printer equipment 1 is a movable configuration relatively to the scanner equipment 2 in the condition of being the configuration that scanner equipment 2 is separated from printer equipment 1, and printer equipment 1 is settled in the bottom of scanner equipment 2, and having been laid in the scanner rack 8, in order to use office space more efficiently, floor occupancy area can be made small.

[0081] Moreover, by juxtaposition of printer equipment 1 and scanner equipment 2, a person separate to each equipment is accessible to coincidence, and a function can be used more efficiently. And even when submodule equipments, such as sheet after-treatment equipment, etc. are attached and it has advanced features (refer to drawing 12 ), a check by looking and removal of the form of a paper output tray are easy, and user-friendliness's are good, and can cope with it easily also to troubles, such as jam processing.

[0082] Furthermore, since printer equipment 1 and scanner equipment 2 are separated, it gets across to printer equipment 1, and the image accuracy of reading can fall, or vibration by the shake at the time of scanning actuation of scanner equipment 2 can prevent deterioration of a quality of printed character as a result so that it cannot give a user insecurity by the shake of scanner equipment 2.

[0083] The vibration and the impact by migration of printer equipment 1 seem moreover, not to get across to scanner equipment 2, in case the location of printer equipment 1 is adjusted since printer equipment 1 and scanner equipment 2 are separable.

[0084] Next, drawing 7 (A), (B), and drawing 8 (A) and (B) explain the structure of the stop section (stop means) 20 prepared in pars-basilaris-ossis-occipitalis 5a (parts other than the access space of the printer equipment 1 lower part which is the list function section) of the above-mentioned multistage feeding desk 5. In addition, drawing 7 (A) is the side-face block diagram of the stop section 20, and (B) is a flat-surface block

diagram.

[0085] The stop section 20 has the stop rod 21 which a point inserts into the stop hole 87 formed in the support guide peg 86 (lower part section of a base material) of the scanner rack 8. the hole with which spittle section 21a was formed in the pars intermedia of the stop rod 21, and the lower part was formed in base 5a of the multistage feeding desk 5 -- it is supported possible [ a slide in the vertical direction ] by the support frame 23 with which it escaped to a, and was fitted in the stop condition, and the upper part was set up by base 5a of the multistage feeding desk 5. And between the support frame 23 and spittle section 21a, the energization spring 22 is \*\*\*\*(ed) and the stop rod 21 is energized in the direction of the scanner rack 8 (caudad).

[0086] The end of the wire 19 almost wound around the pulleys 24 and 24 prepared in the body side of a multistage feeding desk is fixed to the back end (upper limit) of the stop rod 21, and the other end of the wire 19 is being fixed to the discharge knob (discharge means) 25 inserted in the opening 26 prepared in before [ the multistage feeding desk 5 ] side frame 5b free [ migration ]. The discharge knob 25 consists of grasping section 25a held with a finger at the time of discharge, spittle section 25c, and stop section 25b and 25d of guide sections.

[0087] The appearance of the cross section in stop section 25b of a direction perpendicular to the longitudinal direction of the discharge knob 25 is small formed a little from the configuration of opening 26. Moreover, 25d of guide sections of the discharge knob 25 is formed in the shape of [ of a path a little smaller than radii section 26a of opening 26 ] a cylinder. When the energization force of the energization spring 22 acts through a wire 19, spittle section 25c of the discharge knob 25 contacts before [ the multistage feeding desk 5 ] side frame 5b, and is committing the stopper for making it more than it and the discharge knob 25 not move to the inner direction.

[0088] Grasp the discharge knob 25 with a finger and it lengthens to the front side (the direction of B in drawing) of an image formation system. Since the discharge knob 25 will be stopped in the location and a wire 19 will be lengthened if the discharge knob 25 is rotated about 90 degrees (condition of drawing 8 (B)) after stop section 25b of the discharge knob 25 appears from opening 26 in a near side, it escapes from the stop rod 21 from the stop hole 87 of the scanner rack 8.

[0089] After moving the multistage feeding unit 5 and adjusting appropriately printer equipment 1 and the mutual location in the access direction of the scanner rack 8 in this condition, inverse rotation of the discharge knob 25 is carried out again. If it is operated so that stop section 25b of the discharge knob 25 may go into opening 26, body ON of the stop rod 21 is carried out to other stop holes 30 of the scanner rack 10, and it can fix printer equipment 1 and the mutual location in the access direction of the scanner rack 8.

[0090] In addition, although considered as the configuration which makes the stop rod 21 project to the top-face side of the support guide peg 86 of the scanner rack 8 from base 5a of the multistage feeding desk 5, this example may be constituted so that the stop rod 21 may project from the side face of the multistage feeding desk 5 in the medial-surface side of the support guide peg 86 of the scanner rack 8. In this case, what is necessary is just to make the height of the support guide peg 86 of the scanner rack 8 correspond up, so that it may be located rather than base 5a of the multistage feeding desk 5 of drawing 7.

[0091] If the discharge (to movable equipment side) means 25 is formed in the side which had the koro for moving a floor line like this example After operating the discharge means 25 and canceling printer equipment 1 and the scanner rack 8 in the case of discharge, with a posture (location) as it is, movable equipment (this example printer equipment 1) can be moved, and discharge and a stop activity can be performed with very sufficient workability.

[0092] Moreover, as another example of a stop means and a discharge means, as shown in drawing 9 (A) and (B), you may constitute so that the stop rod 21 may be made to project from the support guide-peg 86 side of the scanner rack 8 to the multistage feeding desk 5. In this case, the same discharge knob 25 is formed in the front-face side of the support arm 82 of the scanner rack 8, the end of the wire 19 laid by the pulley 24 prepared in the interior of the scanner rack 8 in the air at that discharge knob 25 is fixed, and the other end of a wire 19 is fixed to the slider member 33 energized in the direction of arrow-head D with the return spring 31.

[0093] The slider member 33 has the slide contact side s formed in the shape of a taper, and the lower limit section formed in the shape of [ of the stop rod 21 energized by the slide contact side s with the energization spring 32 at the slider member 33 side (facing down) ] a semi-sphere contacts. The spittle section c for the Johan section of the stop rod 21 penetrating the opening b formed in the top-face side of the support guide peg

86 of the scanner rack 8, and making a projection and its lower part (slider member 33 side) stop the energization spring 32 up is formed, and the stop rod 21 is energized downward. The upper part of the stop rod 21 inserts into 5d of stop openings formed in base 5a of the multistage feeding desk 5 in the state of illustration, and the multistage feeding desk 5 is stopped on the scanner rack 8.

[0094] By such configuration, if the discharge knob 25 is pulled out (the direction of B in drawing), the hauling force of the return spring 31 will be resisted and the slider member 33 will move in the direction of E in drawing. Thereby, the lower limit of the stop rod 21 energized downward with the energization spring 32 moves in the slide contact side s of the slider member 33, the stop rod 21 descends, and it secedes from 5d of stop openings which the upper part prepared in base 5a of the multistage feeding desk 5. Thereby, the stop condition over the scanner rack 8 of the multistage feeding desk 5 is canceled, and the multistage feeding desk 5 becomes flexibly movable.

[0095] moreover, the discharge knob 25 -- returning (the direction of C in drawing) -- the slider member 33 moves in the direction of D in drawing according to an operation of the return spring 31, the stop rod 21 is pushed up, the upper part inserts in 5d of stop openings prepared in base 5a of the multistage feeding desk 5, and the multistage feeding desk 5 is stopped on the scanner rack 8. In addition, 5d of stop openings for stopping the stop rod 21 in this case takes into consideration the successive range of the access direction of the multistage feeding desk 5, and they should just suitable-number-form it in base 5a.

[0096] As shown in drawing 10 (A) and (B), it can also constitute from a still more nearly another example of a stop means and a discharge means. In this case, the arm section 42 which establish the shaft 40 which can rotate freely, escape on those both sides, and the support guide peg 86 of the scanner rack 8 is made to stop the stop stoppers 40a and 40a, and restrains migration to the shaft orientations of that \*\* 40, and becomes from a plate member at the part in the support guide peg 86 of that shaft 40 is fixed. In addition, drawing 1010 (A) is a side-face block diagram of a stop means and a discharge means, and (B) is a flat-surface block diagram.

[0097] While making it project upward from the opening 89 which fixed the stoppers (stop means) 43, such as hard rubber, on this arm section 42, and formed that stopper's 43 Johan section in the top face of the support guide peg 86 The energization spring 44 which energizes the arm section 42 up in bottom trouble of a tip of the arm section 42 is formed. The upper limit section of the stopper 43 which projected upward from opening 89 is made to contact a pressure-welding condition at base 5a of the multistage feeding unit 5, and it is made to stop the multistage feeding desk 5 on the scanner rack 8 according to the static-friction force. And the pedal 41 as a discharge means for a step is formed in the edge of the shaft 40 projected on the outside (opposite side of the side which carries in the multistage feeding desk 5 and printer equipment 1) of the support guide peg 86 at a fixed condition.

[0098] By such configuration, if the pedal 41 (which printer equipment 1 also moves to coincidence since printer equipment 1 is laid in the upper part) is stepped on on foot in case the multistage feeding unit 5 is moved, a shaft will rotate counterclockwise in drawing 10 (A), the stopper 43 which was doing the pressure welding to base 5a of the multistage feeding unit 5 will descend, and it will estrange from base 5a. Thereby, since a stop with the scanner rack 8 and the multistage feeding unit 5 is canceled and the multistage feeding desk 5 becomes flexibly movable by the koro 10, the multistage feeding unit 5 can be moved to a position in this condition.

[0099] Therefore, since a pedal 41 is stepped on on foot and a stop with the multistage feeding unit 5 and the scanner rack 8 can be canceled, without using the hand of operating the multistage feeding desk 5, workability improves remarkably. In addition, it may replace with the stopper 43 which consists of hard rubber etc. in this case, and the stop rod 21 which carries out stop close to 5d of stop openings formed in base 5a of the multistage feeding desk 5 like drawing 9 may be adopted.

[0100] Next, drawing 11 is the explanatory view showing the important height of each unit section, and the dimension of width of face when designing such an image formation system, and explains the relative correspondence physical relationship of printer equipment 1 (and multistage feeding desk 5) and scanner equipment 2 etc. with this drawing.

[0101] Although the design of the various mho joule equipments which constitute an image formation system is performed with standard body height, if it considers in human engineering in order to use it comfortably to the same extent, even if it is the man of height considerably disconnected from standard body height, the suitable arrangement height of equipment will be determined by level Rhine of a shoulder, and the vertical viewing

angle.

[0102] Usually, in order to simplify operability at the time, the user who the top-face height of the printer equipment 1 which has a delivery unit in a top face, and the top-face height of the automatic manuscript transport device 3 and the top-face height of scanner equipment 2 stand mostly, and has them in a posture needs to be in the range which can operate a hand mostly.

[0103] In the above-mentioned image formation system, although the occupancy area of an image formation system increases a little in consideration of operability, let the printer equipment 1 arranged under scanner equipment 2 be the location out of which it came in the access direction (transverse-plane side) before for a while rather than scanner equipment 2. And the scanner control unit 9 is arranged to the space by the side of the tooth back of the printer equipment 1 formed by pursuing such operability, and the deployment of space is aimed at to it.

[0104] the distance printer equipment 1 pushes out at the front rather than scanner equipment 2 -- an operator's height -- or since the office environment to install needs to adjust finely, two or more stop holes 87 are established in the support guide peg 86 of the scanner rack 8, and it enables it to fix the multistage feeding desk 5 and printer equipment 1 in this image formation system, in the optimal relative position, for example, as shown in drawing 5.

[0105] Moreover, since another unitization of the control section (scanner control unit 9) of scanner equipment 2 was carried out and it attached in the tooth-back location of the printer equipment 1 in the scanner rack 8 in the above-mentioned image formation system, In case a stop with the multistage feeding desk 5 and the scanner rack 8 tends to be canceled and it is going to contain the multistage feeding desk 5 and printer equipment 1 to a back side, the printer equipment 1 so that it may not collide with the scanner control unit 9 As mentioned above, the specification-part material 50 is provided in the support guide peg 86 of the scanner rack 8 (refer to drawing 5).

[0106] That is, if the multistage feeding desk 5 is moved to a back side with printer equipment 1, by the position, the tooth-back lower part of the multistage feeding desk 5 will contact the specification-part material 50, printer equipment (the multistage feeding desk 5 and one) 1 will stop in a just before [ the scanner control unit 9 ] location, and a collision will be avoided. In addition, the configuration which may absorb the impact at the time of a collision, for example, forms it from an elastic member as the specification-part material 50 is desirable.

[0107] Moreover, in the above-mentioned system configuration, since both of each waste heat openings of scanner equipment 2 and printer equipment 1 were seen from the transverse plane and arranged on the side face to the right-hand side side face (refer to drawing 2 ), a weak control section can be protected with heat, without a waste heat style hitting the scanner control unit 9 located in the tooth-back side of printer equipment 1. As a main heat source in printer equipment 1, although there are LSU and an anchorage device, the heat generated in these is led to common printer waste heat opening through the duct prepared in printer equipment 1.

[0108] Moreover, in the above-mentioned image formation system, a user will operate it from a transverse-plane side or left-hand side trouble. A right-hand side side face is the side mainly equipped with the processing door which is the arrangement location of the driving means of a roller etc. if it is printer equipment 1 and is a form conveyance way and scanner equipment 1, and is wide opened at the time of a jam. A user is not made unpleasant with the odor or heat by the waste heat style by packing waste heat opening into such a side that a user does not approach usually.

[0109] In addition, since an electric power supply is fundamentally intercepted for safety at the time of abnormalities, the fan for waste heat prepared in waste heat opening does not operate, and a waste heat style is not generated. Therefore, even if it packs waste heat opening into a jam processing side, it is satisfactory at all.

[0110] Below, each dimension shown in drawing 11 by reference is explained briefly.

[0111] Hy : height by which a printing important section is discharged (Hp+Hd)

Hg1 : The manuscript set at the time of automatic manuscript transport-device use And discharge height Hg2 :

The manuscript set at the time of platen use And discharge height Ha : The height Hs of an automatic manuscript transport device : Height Hp of a scanner : The height Hd of a printer : the space (depth dimension Da3: of the space (A2) concerning sheet conveyance of the depth dimension Da2:automatic manuscript transport device of A19 -- the configuration space of the driving means of a roller etc. --) where the height Da1:sheet guide of a desk, support of a roller, and a cabinet are arranged depth dimension Ds2: of the depth

dimension Ds1:control-panel configuration space (S1) of (A3) -- the scanning zone of a manuscript, the set region of a manuscript, the arrangement region of - scan means, etc. correspond to the depth dimension actual condition of the space (S2) concerning sheet conveyance of a scanner.

[0112] Ds3 : The configuration space of the driving means of a scan means Depth dimension Dpof (S3) 1: The depth dimension Dp2 of the space (P1) concerning support of the sheet conveyance means of printer equipment 1, or an image formation means, or arrangement of a driving means : The depth dimension Dp3 of the space (P2) concerning the sheet conveyance means and image formation of printer equipment 1 The depth dimension Dd1 of the space (P3) concerning support of the sheet conveyance means of printer equipment 1, or an image formation means, or arrangement of a driving means : : Support and attachment-and-detachment actuation of the sheet conveyance means of a desk 10, or an image formation means, depth dimension Dd2: concerning arrangement of a before side gear vignette -- depth dimension Dd3: of the space (D2) concerning sheet conveyance of a desk 10 -- the space (D3) concerning support of the sheet conveyance means of a desk 10 or an image formation means or arrangement of a driving means depth dimension Dh : Depth dimension Dm of the working-level month space of form ejection : Operability is taken into consideration. Depth dimension So of the space which becomes useless when printer equipment 1 and scanner equipment 2 have been arranged up and down : Space Sd of a working-level month : Operability is taken into consideration. Space GMAX which becomes useless when printer equipment 1 and scanner equipment 2 have been arranged up and down : Manuscript GMIN of the maximum width : Manuscript PMAX of the minimum width of face : Form PMIN of the maximum width : Form h of the minimum width of face : Conveyance center i of a manuscript : To the conveyance center, next drawing 12 of a form The image formation equipment which constitutes the image formation system concerning the operation gestalt from which this invention differs is shown. In this case, sheet after-treatment equipment 4 is further connected to the configuration of drawing 1 . When sheet after-treatment equipment 4 is carried, the junction conveyance unit 6 for leading the form outputted from the delivery unit prepared in the upper part of printer equipment 1 to sheet after-treatment equipment 4 is also included in coincidence. Below, sheet after-treatment equipment 4 and the junction conveyance unit 6 are explained.

[0113] (Sheet after-treatment equipment) Sheet after-treatment equipment 4 performs after treatment for the record material on which the image discharged from printer equipment 1 was recorded to reception and record material. As after treatment, the equipment illustrated here although stay bull processing, sorting application, etc. occur is the configuration equipped with three paper output trays 141,142,143, changes discharge tray 141 - if needed, and can discharge a sheet. A lot of sheets can be mounted on each tray.

[0114] (Junction conveyance unit) The junction conveyance unit 6 is a conveyance unit for introducing the record material on which the image with which the delivery unit 48 of printer equipment 1 is equipped, and which is discharged from printer equipment 1 was recorded toward the sheet after-treatment equipment 4 located in the downstream of printer equipment 1.

[0115] Moreover, in the middle of the record material conveyance path 61 of this junction conveyance unit 6, record material was temporarily led to the top face of this unit, and it has the record material maintenance side 62 which carries out guidance support so that switchback conveyance of the record material may be carried out toward a record material double-sided transport device (illustration abbreviation).

[0116] In addition, although the koro 10 was formed in the multistage feeding desk 5 side and being turned on the migration side in the above-mentioned explanation, the configuration which forms the koro 10 in the scanner rack 8 side, and makes the scanner equipment 2 side a migration side is also possible. However, since such an image formation system turns a tooth-back side to a wall and is installed in many cases, its need of the direction considered as the configuration to which the printer equipment 1 side pulled out at a transverse-plane side (the access direction) is moved is usually high.

[0117]

[Effect of the Invention] According to this invention, the following effectiveness is acquired.

[0118] (1) A manuscript reading function part and the list function section are separated, it is the configuration that the list function section is settled in the bottom of a manuscript reading function part, and to the manuscript reading function part in the condition of having been laid in the base material, since the list function section is a movable configuration relatively, do the following effectiveness so.

[0119] \*\* In order to use office space more efficiently, an image formation system with a small floor occupancy area can be formed.

[0120] \*\* Printer equipment and scanner equipment are juxtaposed, a person separate to each equipment is accessible to coincidence, and a function can be used more efficiently.

[0121] \*\* Even when submodule equipments, such as sheet after-treatment equipment, etc. are attached and it complicates, a check by looking and removal of the form of a paper output tray are easy, and user-friendliness's are good, and can cope with it easily also to troubles, such as jam processing.

[0122] \*\* The image accuracy of reading does not fall or vibration by the shake at the time of scanning actuation of scanner equipment seems to get across to a printer equipment side, and not to give a user insecurity by the shake of scanner equipment, since the printer equipment and scanner equipment side is separated.

[0123] \*\* The impact of migration of printer equipment seems not to get across to scanner equipment further, since it is the configuration that printer equipment and scanner equipment are separable.

[0124] And since the list function section and a base material are stopped with a stop means, the mutual location by the side of scanner equipment and printer equipment is fixable to a stop condition in the good suitable location of \*\* operability.

[0125] And since a stop means stops the lower part outside the access space of the list function section, and the lower part section of a base material, it is not interfered at all on the layout of \*\* device, and the expandability of a function is not checked.

[0126] (2) Since the above-mentioned stop means enabled modification of the relative stop location of the access direction of the above-mentioned list function section and a manuscript reading function part, the adjustment of the mutual location of \*\* printer equipment and scanner equipment of it is attained, and the adjustment of it according to the height of a user's back is attained, and it can secure good operability.

[0127] (3) Since the specification-part material for avoiding the collision with the list function section and other function parts was prepared and the mutual approach location limit of \*\* list function section and other function parts can be clearly set up by specification-part material, the conditions on the layout which can secure operability and can avoid breakage of the device by the collision with other function parts can be set up clearly.

[0128] (4) Since a discharge means to make a stop with the above-mentioned base material and the list function section by the above-mentioned stop means cancel was formed in the upper part of the above-mentioned base material, it is easy to carry out discharge actuation, and is easy to carry out adjustment of the mutual location of the list function section and a manuscript reading function part, and operability improves.

[0129] (5) By that which forms a discharge means in the side in which the koro for migration is prepared, since it can move to discharge actuation and coincidence as it is at migration actuation, operability improves remarkably.

[0130] (6) In the condition of having held the list function section by hand since the operational discharge means was established on foot, since discharge of a stop means can be performed with foot, workability improves to \*\*\*\*.

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[Translation done.]

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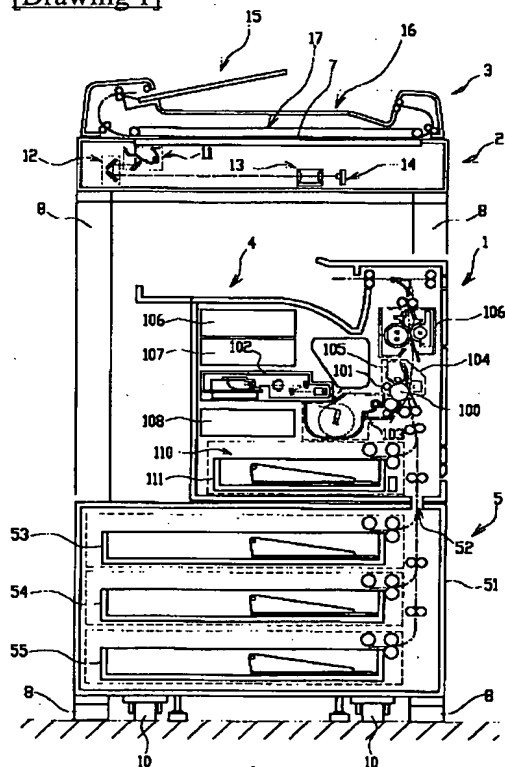
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2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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DRAWINGS

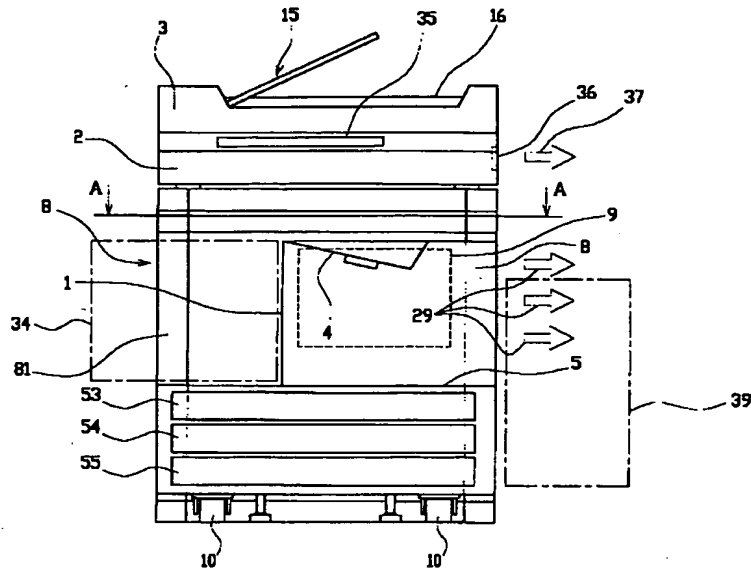
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[Drawing 1]

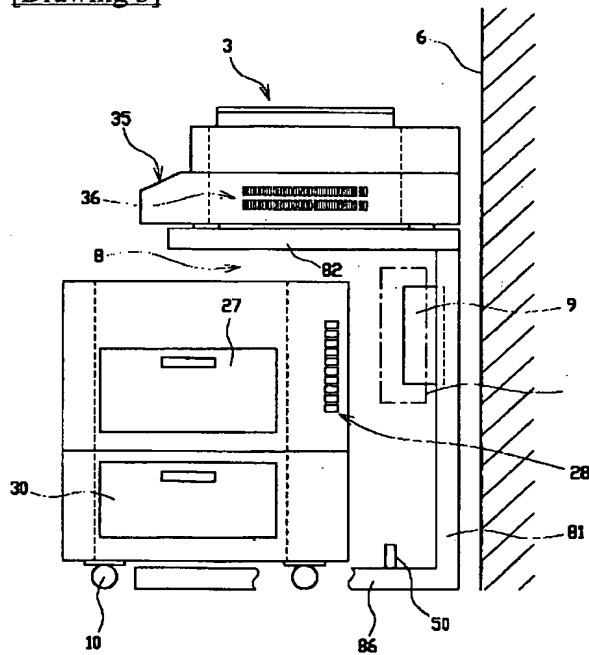


[Drawing 2]



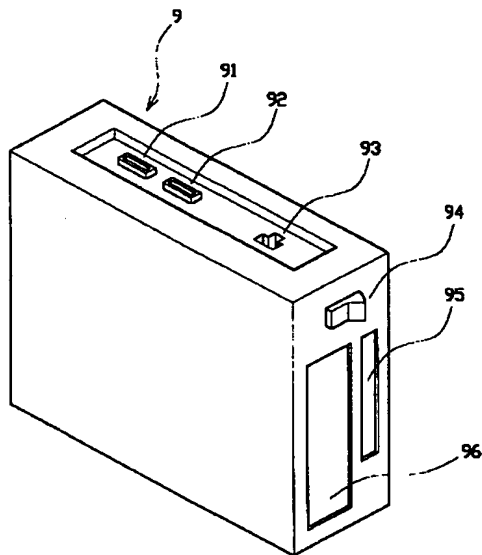


[Drawing 3]



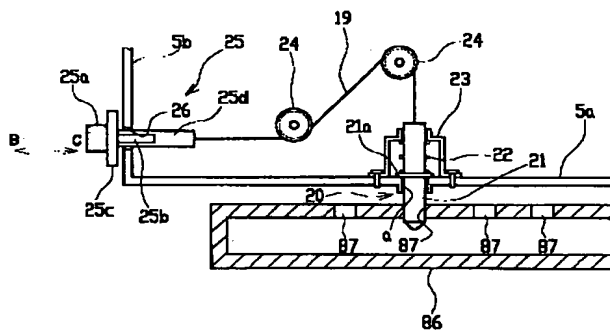
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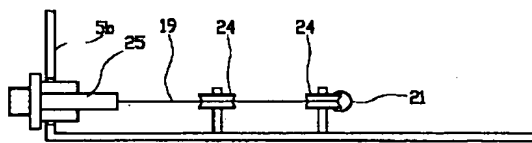


[Drawing 7]

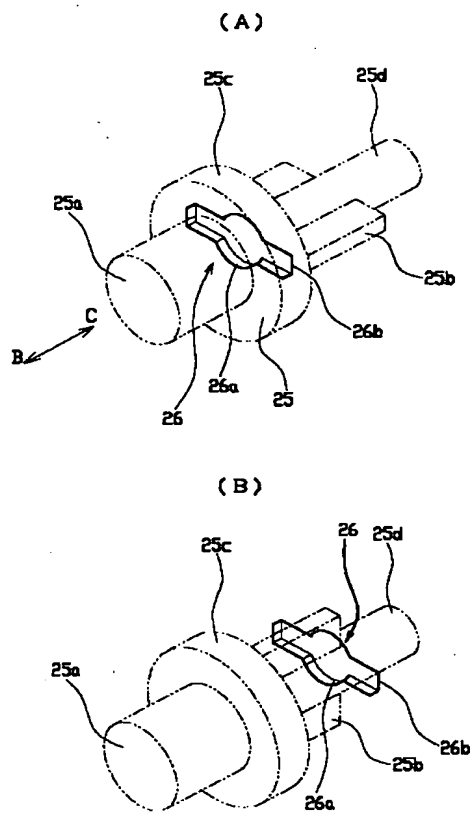
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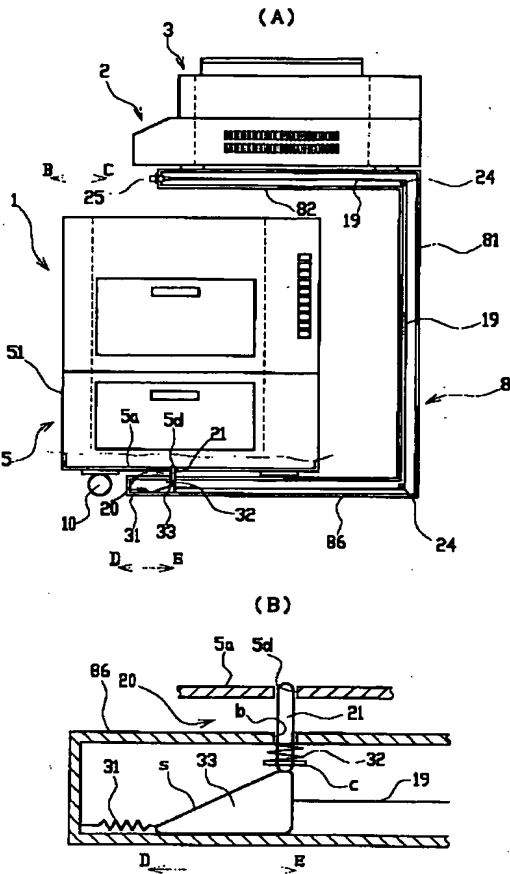
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[Drawing 8]

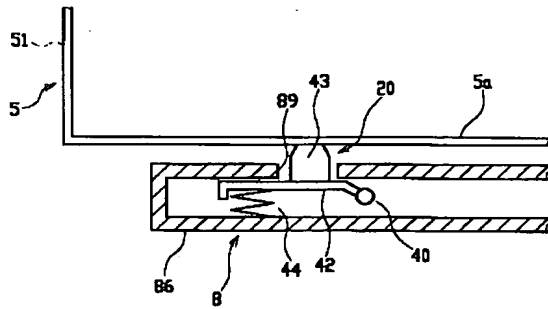


[Drawing 9]

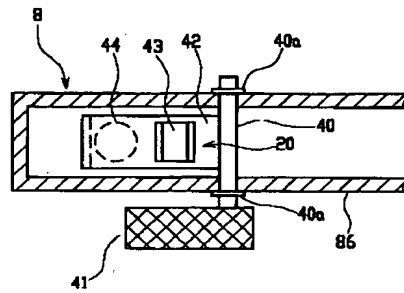


[Drawing 10]

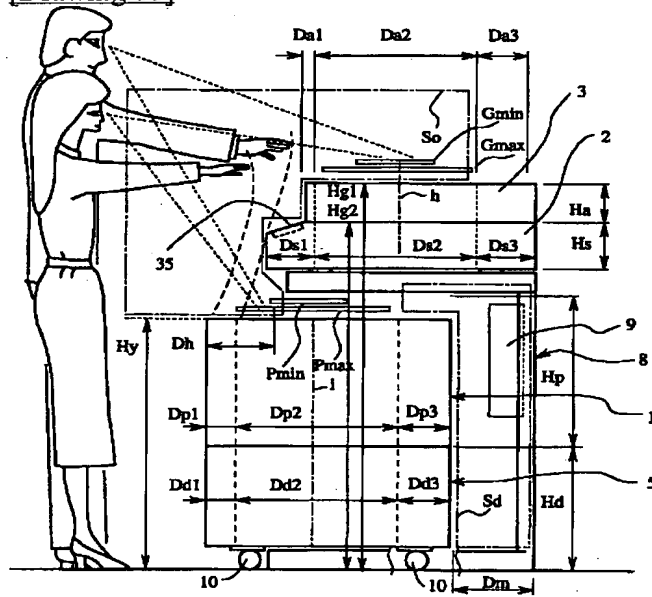
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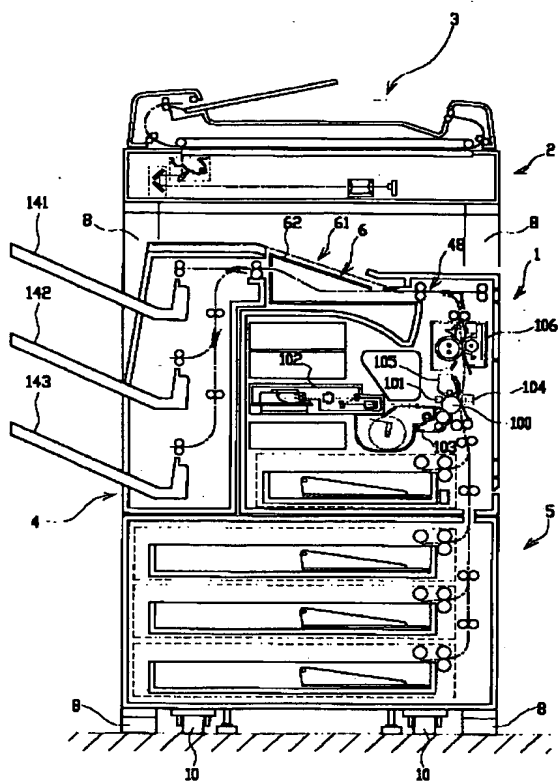
(B)



[Drawing 11]



[Drawing 12]



[Translation done.]

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CORRECTION OR AMENDMENT

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[Kind of official gazette] Printing of amendment by the convention of 2 of Article 17 of Patent Law  
 [Section partition] The 2nd partition of the 6th section  
 [Publication date] August 12, Heisei 16 (2004. 8.12)

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G03G 15/00  
 H04N 1/00  
 H05K 7/18

[FI]

G03G 15/00        550  
 H04N 1/00        D  
 H05K 7/18        D

[Procedure revision]  
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 [Procedure amendment 1]  
 [Document to be Amended] Specification  
 [Item(s) to be Amended] Whole sentence  
 [Method of Amendment] Modification  
 [The contents of amendment]  
 [Title of the Invention] Image formation equipment  
 [Claim(s)]

[Claim 1] It has the base material which lays the above-mentioned manuscript reading function part so that the list function section which prints an image in a form, the manuscript reading function part which scans a manuscript and reads an image, and the above-mentioned manuscript reading function part may be located above the above-mentioned list function section, and the above-mentioned list function section sets to movable image formation equipment relatively to the above-mentioned manuscript reading function part in the condition of having been laid in the above-mentioned base material,

Image formation equipment characterized by having stopped the part outside the access space of the above-mentioned list function section lower part in the above-mentioned base material lower part section, and having a stop means to regulate the relative position in the access direction of the above-mentioned manuscript reading function part to the above-mentioned list function section.

[Claim 2] The above-mentioned stop means is image formation equipment according to claim 1 characterized by the ability to change the relative stop location of the access direction of the above-mentioned list function section and a manuscript reading function part.

[Claim 3] Image formation equipment according to claim 1 or 2 characterized by preparing the specification-

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part material for avoiding the collision with the above-mentioned list function section and other function parts in the migration direction of the above-mentioned list function section while the above-mentioned list function section and the above-mentioned base material, and when other function parts are arranged.

[Claim 4] Image formation equipment given in claim 1 characterized by forming a discharge means to make a stop with the above-mentioned base material and the list function section by the above-mentioned stop means cancel in the upper part of the above-mentioned base material thru/or any 1 term of 3.

[Claim 5] Image formation equipment given in claim 1 characterized by establishing a discharge means to make the above-mentioned list function section or the above-mentioned base material with which the koro for migration is prepared for any of the above-mentioned list function section or the above-mentioned base material being, and the above-mentioned koro for migration is prepared cancel a stop with the base material and the list function section by the above-mentioned stop means thru/or any 1 term of 3.

[Claim 6] Image formation equipment given in claim 1 characterized by establishing an operational discharge means on foot for the above-mentioned list function section having the koro for migration, and canceling a stop with the above-mentioned base material of the above-mentioned stop member, and the above-mentioned list function section to said base material side thru/or any 1 term of 3.

[Claim 7] As opposed to the lower part of the base material which supports the manuscript reading function part which scans a manuscript and reads an image in the upper part A form is equipped with the list function section which prints an image free [ insertion and detachment in at least 1 direction ]. Image formation equipment characterized by forming the stop rod alternatively inserted for any of two or more stop holes established in said base material or said list function section being, and coming to adjust the relative position of said list function section to said manuscript reading function part in said one direction.

[Claim 8] Image formation equipment according to claim 7 characterized by forming the stop rod which two or more stop holes were installed in said one direction by said base material, made insertion free alternatively any of two or more of said stop holes they are, and was positioned to said list function section.

[Claim 9] Image formation equipment according to claim 7 characterized by forming two or more stop rods which two or more stop holes were installed in said one direction by each of the both sides which sandwich said list function section in the direction which intersects perpendicularly in said one direction in said base material, made the stop free alternatively in each of the both sides of said base material any of two or more of said stop holes they are, and were positioned to said list function section.

[Claim 10] Image formation equipment according to claim 7 characterized by preparing the specification-part material which regulates the successive range of the path of insertion to the lower part of said base material in said one direction of said list function section by contact in said a part of list function section to said base material.

[Claim 11] The image-formation equipment which is equipped with the list function section which prints an image in a form in the at least 1 direction free [ insertion and detachment ] to the lower part of the base material which supports the manuscript reading function part which scans a manuscript and reads an image in the upper part, and is characterized by to prepare the specification-part material which regulates the successive range of the path of insertion to the lower part of said base material in said one direction of said list function section by contact in a part of said list function section to said base material.

[Detailed Description of the Invention]

[0001]

[Field of the Invention]

This invention relates to image formation equipment excellent in expandability.

[0002]

[Description of the Prior Art]

If it is in the image formation equipment which constitutes a compound machine equipped with a copy function, a facsimile function, and printer ability by the rapid spread of personal computers in recent years, the printer has shifted to the gestalt of the base from the gestalt which used the conventional copying machine as the base.

[0003]

That is, in the case of conventional image formation equipment, the optional equipment for the improvement in functional of after-treatment equipment, a manuscript automatic transferring machine, a mass tray, a multistage feeding desk, etc. was attached in the body of a copying machine which constituted the scanner section, the image formation section, and the feed section as one equipment if needed.

[0004]

However, it is necessary to connect various equipments, such as a personal computer (henceforth a personal computer), a server, a scanner, and a printer, on a network, and to use each equipment efficiently according to a use application in office in recent years.

[0005]

For this reason, it is in the scanner section and the printer section not about the image formation equipment which made the subject a body of a copying machine which was described above but about the body of a copying machine, Or it has come to form image formation equipment in the scanner section and the printer section which built in the feed section for each which separated the function combining these main module equipments as separate main module equipment (since it is the module which serves as the base of image formation equipment for the purpose of reading or printing an image, the main module equipment has been called).

[0006]

Moreover, positioning as equipment for corresponding to various demands of a user densely is made, and the optional equipment from the former by which after-treatment equipment, the manuscript automatic transferring machine, the mass tray, the multistage feeding desk, etc. were treated as attachment for the improvement in functional has also come to be positioned as submodule equipment in this semantics to main module equipment like scanner module equipment or printer module equipment.

[0007]

If it is in image formation equipment, such the Lord and submodule equipment are put together and used increasingly if needed. in addition, henceforth -- scanner module equipment -- scanner equipment and printer module equipment -- printer equipment -- as ... module equipment -- a module -- removing ... equipment is called.

[0008]

By the way, various requests as follows are made in the office space where the image formation equipment which consisted of such each module equipment is used.

[0009]

(a) In order to use office space more efficiently, image formation equipment with a small floor occupancy area is demanded.

[0010]

(b) Even when scanner equipment and printer equipment are respectively independent (they are [ equipment / scanner ] FAX, printing of the transmit data from a personal computer, etc. about the read of an image, and printer equipment), Although the image formation equipment which can operate (it reads with scanner equipment and prints with printer equipment) is demanded also in combination and it is accompanied by the increment in some floor occupancy area in this case, printer equipment and scanner equipment are juxtaposed and each equipment is expected image formation equipment with a separate person accessible to coincidence so that a function can be used more efficiently.

[0011]

(c) Even when submodule equipment etc. is attached and it complicates as a matter of course, a check by looking and removal of the form of a paper output tray are easy, user-friendliness is also good, and image formation equipment with easy correspondence is desired also to troubles, such as jam processing.

[0012]

As opposed to the request to such image formation equipment, it is in JP,5-219308,A, The base material of scanner equipment is fixed to the printer equipment put on the multistage feeding desk. Furthermore, scanner equipment is constituted movable all around to the paper output tray which formed cross-joint-like the guide rail and energization means of scanner equipment in this base material, and was prepared in the crowning of printer equipment. In case the form on a paper output tray is removed, while making it scanner equipment not become obstructive, the floor space which image formation equipment occupies is narrowed, and it can be made to perform a deployment of office space.

[0013]

Moreover, receive an upper installation base and an upper base material body in JP,11-119497,A. Scanner equipment puts on an upper installation base, and printer equipment puts on a downward installation base to the base material which equipped the cross direction with the installation base of a movable lower part, and while

reducing the floor occupancy area of image-formation equipment, he prevents the fall of the image accuracy of reading by the shake at the time of scanning actuation of scanner equipment, and he is trying to remove the insecurity of the user by the shake of scanner equipment by fixing the upper part of printer equipment to a base material by the holddown member.

[0014]

Moreover, the maintenance of the laser scanner by heavens covering removal is made easy to pull out printer equipment ahead from directly under [ of scanner equipment ] with a movable installation base below, and to perform by demounting the holddown member which attaches printer equipment in a base material.

[0015]

However, it is [ as opposed to / so that it faces removing the form of the paper output tray which prepared in the crowning of printer equipment since it was the configuration of having arranged printer equipment directly under scanner equipment with the configuration of former above-mentioned JP,5-219308,A, and having reduced the floor occupancy area of image-formation equipment more (request item of the above (a)) and scanner equipment may not become obstructive / printer equipment ] made it being able to carry out all around in sulcus cruciatus and an elastic member the specified-quantity migration of the scanner equipment.

[0016]

However, with such a configuration, in order to remove the form on a paper output tray, scanner equipment is resisted and pushed on the elastic force of an elastic member by hand of one of the two, it must become the actuation which removes the form on a paper output tray by the hand of another side, scanner equipment must be pushed at every removal to a form removal activity with the highest access frequency in image formation equipment, and user-friendliness is hard to be called fitness.

[0017]

Moreover, generally scanner equipment is because of making possible read also of a book manuscript or the manuscript which sticks and does not fit automatic conveyance of a manuscript etc., Since the interior equips with the scan unit which carries out both-way migration to a manuscript, and reads a manuscript, when scanning actuation of scanner equipment is performed, it is generated in another problem the image accuracy of reading will fall or will give insecurity to a user as it will shake towards both-way migration of a scan unit and the scanner equipment energized by the elastic member is indicated by JP,11-119497,A according to the inertia at the time of both-way migration of a scan unit.

[0018]

In addition, although it is also considered that do not prepare such sulcus cruciatus and an elastic member, but \*\* also makes easy form removal on the paper output tray of printer equipment by enlarging the gap of scanner equipment and printer equipment, if it does in this way, the manuscript installation side of scanner equipment will become high, and the user-friendliness of scanner equipment will worsen for a short user. On the contrary, if it is going to correspond without making the manuscript installation side of scanner equipment high, the number of stages of a multistage disk unit will be lessened, the class of the part and paper size which can be set will decrease, and user-friendliness will become bad.

[0019]

Moreover, since it was the configuration of putting printer equipment on the installation base of the lower part of a base material, in latter JP,11-119497,A, printer equipment needed to be lifted, it needed to put on the installation base, and workability was bad on the occasion of installation of image formation equipment at it.

[0020]

Moreover, since the paper output tray of printer equipment was located directly under scanner equipment, this technique was what a check by looking or removal of a form cannot perform easily. Here, in order to make a check by looking and removal of a form easy to perform, the configuration which takes large spacing of scanner equipment and printer equipment is considered, and the same problem as the case of a \*\*\*\*\* No. 219308 [ five to ] official report follows.

[0021]

Furthermore, since immobilization with printer equipment and a base material is performed, in case submodule equipments, such as after-treatment equipment, are arranged and the function of image formation equipment is extended in the upper part of the near side face which the user of printer equipment accesses, a limit will be added to the space for an escape, the function of equipment is restricted or the free nature of a design falls.

[0022]

Moreover, since it is the configuration that it cannot adjust by deciding the mutual location of the cross direction of printer equipment and scanner equipment except when pulling out printer equipment at the time of a maintenance, according to the ease over an activity which is different by each user, a fine setup cannot do the easy feeling of the removal sensed in case a user removes a form from the paper output tray of a printer crowning etc.

[0023]

Moreover, in the condition that printer equipment was ahead pulled out at the time of a maintenance, in spite of being in a condition usable as scanner equipment itself, since printer equipment occupies space for a user to access scanner equipment, the problem that scanner equipment cannot be used is also produced.

[0024]

Furthermore, since movement of the printer equipment at the time of being ahead pulled out for a maintenance of printer equipment, or being returned gets across to scanner equipment as an impact through a base material, it will give an unnecessary impact to scanner equipment and tends to cause failure.

[0025]

On the other hand, printer equipment is carried on a multistage feeding desk with the koro, and while the scanner equipment which rode on susceptor (the inside of an official report rack 2) in the upper part is arranged, the image formation equipment which has arranged the automatic double-sided transport device which is submodule equipment to the right lateral of printer equipment is indicated by JP,9-297440,A.

[0026]

With such a configuration, since printer equipment is settled under the scanner equipment, the floor space which image formation equipment occupies can be made small (request item of the above (a)). Moreover, since the BURINTA equipment and scanner equipment side is separated, printer equipment and scanner equipment can be juxtaposed if needed, and people become accessible at coincidence at printer equipment and each scanner equipment (request item of the above (b)).

[0027]

Moreover, jam processing is also easy by pulling out printer equipment from the bottom of scanner equipment. And it is easy to perform removal of the form from a paper output tray by setting appropriately the mutual location of the cross direction of printer equipment and scanner equipment so that it may be easy to remove the form on the paper output tray of a printer equipment crowning, or so that the form on the paper output tray of printer equipment \*\*\*\* may be legible (request item of the above (c)).

[0028]

As [ give / a user / vibration by the shake at the time of scanning actuation of scanner equipment gets across to a printer equipment side, and / moreover, / since the printer equipment and scanner equipment side is separated / the image accuracy of reading does not fall or / by the shake of scanner equipment / insecurity ] (request item (d))

[0029]

As [ get across / since it is the configuration that printer equipment and scanner equipment are separable / furthermore, / to scanner equipment / the impact of migration of printer equipment ] (request item (e))

[0030]

[Problem(s) to be Solved by the Invention]

However, with the configuration of a \*\*\*\*\* No. 297440 [ nine to ] official report, since there is no member which specifies the mutual location of the printer equipment carried on the multistage feeding desk and the scanner equipment attached on susceptor, a mutual location will change simply.

[0031]

For this reason, for example, at first so that it may be easy to remove the form on the paper output tray of the printer equipment nape Or even if he is trying for the mutual location of the cross direction of printer equipment and scanner equipment to become suitable so that the form on the paper output tray of a printer equipment crowning may be legible The mutual location of printer equipment and scanner equipment changes gradually. Since become the physical relationship which neither a check by looking of the form on a paper output tray nor removal can carry out easily, the floor occupancy area of image formation equipment serves as size unnecessarily or printer equipment is located too much ahead, it is hard coming to use scanner equipment.

[0032]

Moreover, since there were no criteria for adjusting although a user adjusts the mutual location of the cross

direction of printer equipment and scanner equipment, it means not understanding immediately how much it should be made, but saying that it is decided that it will be the sheep of trial-and-error, and had become what has bad user-friendliness. That is, the configuration which can regulate the mutual location by the side of scanner equipment and printer equipment is needed for image formation equipment (request item (f)).

[0033]

However, it is not the flume thing which should just prepare the member which only regulates the mutual location by the side of scanner equipment and printer equipment here. It is got blocked,

(g) expandability prevents by having established a means to regulate a mutual location -- having -- \*\*\*\* -- it is bad. It must be the configuration which adds to a certain image formation equipment further now, and can perform the escape of a function variously.

[0034]

(h) It is desirable for the mutual location of printer equipment and scanner equipment to be adjusted.

[0035]

On the other hand, apart from the above, with such image formation equipment, in order to use scanner equipment and each printer equipment efficiently on a network, the control section which had CPU in each equipment is prepared, and it has the composition that image formation equipment works because between these control sections communicates mutually.

[0036]

Therefore, it is needed that they will be the configurations that it can respond easily for these and promptly since various these control sections prepared in each equipment correspond to the control program for corresponding to the additional equipment of page memory and the printer of a version which hard-disk-equips and is different, the software of the image processing revised, etc. if that from which a specification differs exists and scanner equipment is taken for an example in order to work efficiently on a network. Therefore, the control section of scanner equipment tends to increase thickness.

[0037]

However, on the relation arranged above printer equipment, if thin shape-ization of scanner equipment tends to arrange an above-mentioned control section inside the airframe of scanner equipment, or a case required therefore in order to make operability good, it will become difficult to thin-shape-ize scanner equipment. Moreover, since the exposure lamp for manuscript exposure having especially scanner equipment generates heat, the interior of scanner equipment becomes an elevated temperature considerably. Therefore, where a control section is built in, in order to separate a heat source from a control section, it becomes bulky inevitably and thin shape-ization cannot be attained.

[0038]

Then, the applicant for this patent has proposed previously the configuration which attaches the control section of scanner equipment in a scanner rack. A scanner rack is equipped with such a control section of scanner equipment, and where printer equipment is settled in a scanner rack, when printer equipment has a possibility of colliding with a scanner control section, the mutual approach location limit of the printer equipment and scanner control section serves as important conditions, when setting up the range of the stop location of printer equipment and scanner equipment (request item (i)). That is, the problem on the layout of the ability of printer equipment to be made approaching a scanner control section to what extent (after securing user-friendliness) must be solved on actuation in human engineering that there is nothing inconvenient in any way.

[0039]

Enable adjustment of the mutual location of printer equipment and scanner equipment, or the purpose is regulating the mutual location of printer equipment and scanner equipment, and is to offer the image-formation equipment which can perform a deployment of the office space by improvement in the user-friendliness of image formation equipment, improvement in the installation ease of image-formation equipment, and reduction of floor occupancy area etc. integrative, accomplishing this invention in view of the above-mentioned technical problem.

[0040]

[Means for Solving the Problem]

This invention is equipped with the following configurations as above-mentioned The means for solving a technical problem.

[0041]

(1) The list function section which prints an image in a form, and the manuscript reading function part which scans a manuscript and reads an image, It has the base material which lays the above-mentioned manuscript reading function part so that the above-mentioned manuscript reading function part may be located above the above-mentioned list function section. The above-mentioned list function section sets to movable image formation equipment relatively to the above-mentioned manuscript reading function part in the condition of having been laid in the above-mentioned base material. It is characterized by having stopped the part outside the access space of the above-mentioned list function section lower part in the above-mentioned base material lower part section, and having a stop means to regulate the relative position in the access direction of the above-mentioned manuscript reading function part to the above-mentioned list function section.

[0042]

Since it is the configuration that a manuscript reading function part and the list function section are first separated in this configuration, and the list function section is settled in the bottom of a manuscript reading function part and the list function section is a movable configuration relatively to the manuscript reading function part in the condition of having been laid in the base material, it is the above (a). (e) A request item may be satisfied.

[0043]

And since the relative position of the access direction of the list function section and a manuscript reading function part is controllable by having a stop means further and stopping the list function section and a base material with a stop means, it is the above (f). A request item can be satisfied and the technical problem in JP,9-297440,A can be solved.

[0044]

And a stop means is the above (g) here, without it seeming that expandability is checked by having established a means to have stopped the lower part outside the access space of the list function section, and the lower part section of a base material, and to regulate a mutual location. A request item is also satisfying.

[0045]

In addition, as the above-mentioned list function section, there is combination of the printer equipment simple substance equipped with the feed device, for example or printer equipment, and feed equipments, such as a multistage feeding desk. Moreover, as a manuscript reading function part, there is a scanner rack as scanner equipment and a base material.

[0046]

(2) The above-mentioned stop means is characterized by the ability to change the relative stop location of the access direction of the above-mentioned list function section and a manuscript reading function part.

[0047]

The height of the back of the user who uses image formation equipment etc. needs to adjust the mutual location of the list function section and a manuscript reading function part. Since a stop means is the configuration which can adjust a mutual location according to the above-mentioned configuration, it is the above (h). A request item is satisfied and the effectiveness which does so by the ability specifying a mutual location is acquired much more effectively compared with the configuration which cannot perform adjustment of a mutual location.

[0048]

(3) It is the question of the above-mentioned list function section and the above-mentioned base material, and when other function parts are arranged in the migration direction of the above-mentioned list function section, it is characterized by preparing the specification-part material for avoiding the collision with the above-mentioned list function section and other function parts.

[0049]

It is a request item (i) so that the list function section may not collide with a control section as a configuration which attached the control section of scanner equipment in the tooth-back location of the list function section in a base material, for example, since according to this configuration the location of the list function section to other function parts is regulated and a collision is prevented with a regulation means. It can be satisfied.

[0050]

(4) It is characterized by forming a discharge means to make a stop with the above-mentioned base material and the list function section by the above-mentioned stop means cancel in the upper part of the above-mentioned base material.

[0051]

Since a discharge means to cancel the stop condition of a stop means was formed in the upper part of a base material according to this configuration, it is easy to carry out discharge actuation, is easy to carry out adjustment of the mutual location of the list function section and a manuscript reading function part, and excels in operability.

[0052]

(5) It is characterized by establishing a discharge means to make the above-mentioned list function section or the above-mentioned base material with which the koro for migration is prepared for any of the above-mentioned list function section or the above-mentioned base material being, and the above-mentioned koro for migration is prepared cancel a stop with the base material and the list function section by the above-mentioned stop means.

[0053]

Canceling a stop condition is the case where the side which moves needs to be moved. Therefore, since it can move to migration actuation at the same time it canceled if a discharge means is formed in the side to which it is made to move like this configuration, operability is good.

[0054]

(6) It is characterized by establishing an operational discharge means on foot for the above-mentioned list function section having the koro for migration, and canceling a stop with the above-mentioned base material of the above-mentioned stop member, and the above-mentioned list function section to said base material side.

[0055]

Since discharge of a stop means can be performed with foot in the condition of having held the list function section by hand according to this configuration, workability is good.

[0056]

(7) As opposed to the lower part of the base material which supports the manuscript reading function part which scans a manuscript and reads an image in the upper part A form is equipped with the list function section which prints an image free [ insertion and detachment in at least 1 direction ]. The stop rod alternatively inserted for any of two or more stop holes established in said base material or said list function section being is formed, and it is characterized by coming to adjust the relative position of said list function section to said manuscript reading function part in said one direction.

(8) It is characterized by forming the stop rod which two or more stop holes were installed in said one direction by said base material, made the stop free alternatively any of two or more of said stop holes they are, and was positioned by said list function section.

(9) It is characterized by forming two or more stop rods which two or more stop holes were installed in said one direction by each of the both sides which sandwich said list function section in the direction which intersects perpendicularly in said one direction in said base material, made the stop free alternatively in each of the both sides of said base material any of two or more of said stop holes they are, and were positioned by said list function section.

(10) It is characterized by preparing the specification-part material which regulates the successive range of the path of insertion to the lower part of said base material in said one direction of said list function section by contact in said a part of list function section to said base material.

It is a request item (i) so that the list function section may not collide with a control section as a configuration which attached the control section of scanner equipment in the tooth-back location of the list function section in a base material, for example, since the successive range of the path of insertion to the lower part of the base material in said one direction of the list function section is regulated with a regulation means according to this configuration. It can be satisfied.

(11) It has the list function section which prints an image in a form free [ insertion and detachment ] in the at least 1 direction to the lower part of the base material which supports the manuscript reading function part which scans a manuscript and reads an image in the upper part, and is characterized by preparing the specification-part material which regulates the successive range of the path of insertion to the lower part of said base material in said one direction of said list function section by contact in said a part of list function section to said base material.

It is a request item (i) so that the list function section may not collide with a control section as a configuration which attached the control section of scanner equipment in the tooth-back location of the list function section in

a base material, for example, since the successive range of the path of insertion to the lower part of the base material in said one direction of the list function section is regulated with a regulation means according to this configuration. It can be satisfied.

[0057]

[Embodiment of the Invention]

An example of the image formation equipment applied to the operation gestalt of this invention at drawing 1 - drawing 4 is shown.

[0058]

For drawing 1, the transverse-plane (it saw from access) sectional view of this image formation equipment and drawing 2 are [ the side elevation and drawing 4 of the front view and drawing 3 ] the A-A line view sectional views of drawing 2.

[0059]

With this image formation equipment, it connects and printer equipment 1 of the multistage feeding desk [ scanner equipment 2, the automatic manuscript transport device (ADF) 3, and ] 5 is in a nucleus. With the automatic manuscript transport device 3 arranged in the upper part, scanner equipment 2 is supported by the scanner rack 8, and is arranged above printer equipment 1 and sheet after-treatment equipment 4.

[0060]

Moreover, the control section of scanner equipment 2 is separately prepared independently as a scanner control unit 9, and the scanner control unit 9 is attached in the scanner rack 8 (tie-down plate 85) of a location for which it comes to the tooth back of printer equipment 1 where the printer equipment 1 laid in the multistage feeding desk 5 is settled in the scanner rack 8 (refer to drawing 3).

[0061]

Here, each module equipment is explained briefly first.

[0062]

(Printer equipment)

From the first, the record output of the image into which printer equipment 1 was read with scanner equipment 2 will carry out the record output of the image data from this external connection device, if image processing systems, such as a personal computer, are connected through a network etc.

[0063]

The centering on photo conductor drum 100 electrophotography [ equipment / 1 / printer / right-hand side / within the body of equipment / abbreviation central ] process section is arranged. When it explains briefly, around the photo conductor drum 100 The electrification roller 101 which electrifies a photo conductor drum front face in homogeneity, and the light-scanning unit 102 which scans a light figure to photo conductor drum lifting charged in homogeneity, and writes an electrostatic latent image in it, The development unit 103 which reproduces with a developer the electrostatic latent image written in by the light-scanning unit, The imprint unit 104 which imprints the image by which storage reappearance was carried out at photo conductor drum lifting on record material, Sequential arrangement of the cleaning unit 105 which makes it possible to remove the developer which remained to photo conductor drum lifting, and to record a new image on photo conductor drum lifting, the electric discharge lamp unit (illustration abbreviation) which removes the charge of a photo conductor drum front face is carried out.

[0064]

The record material feed zone 110 by which interior was carried out into printer equipment 1 is arranged at the printer equipment 1 bottom. The image by which sequential supply of the record material by which separation supply was carried out one sheet at a time from this record material feed zone 110 was carried out between the photo conductor drum 100 of the electrophotography process section and the imprint unit 104, and record reappearance was carried out on the photo conductor drum 100 is imprinted. In addition, supply of the record material to this record material feed zone 110 is performed to the transverse-plane side of printer equipment 1 by pulling out the record material hold tray 111. Moreover, the printer jam processing door 27 and the printer waste heat opening 28 (refer to drawing 3) are formed in the side face of the body of equipment.

[0065]

The record material sent from the multistage feeding desk 5 grade currently prepared as a peripheral device is accepted in the inferior surface of tongue of printer equipment 1, and extended record material acceptance opening for carrying out sequential supply toward between the photo conductor drum 100 of the



electrophotography process section and the imprint units 104 is prepared in it. The fixing unit 106 is arranged above the electrophotography process section, the record material by which the image was imprinted is accepted one by one, heating fixing of the developer imprinted on record material is carried out, and record material is discharged out of equipment. The record material on which the image was recorded is discharged by the discharge section (sheet after-treatment equipment, in this case discharge tray) 4 of the top face of printer equipment 1.

[0066]

The process control unit (PCU) substrate which controls an electrophotography process in the vertical space section of the light-scanning unit 102, A predetermined image processing is performed to the printer control section 106 which contained the interface substrate which accepts the image data from the equipment outside, and the image data accepted from the interface substrate. The image control section 107 which contained the image control unit (ICU) substrate for carrying out scan record as an image by the light-scanning unit, these various substrates, the power supply unit 108 which supplies power to each unit are arranged.

[0067]

Moreover, submodule configuration space for the field 34 which 6 showed the printer waste heat style to which a wall surface and an arrow head 29 are emitted from the printer waste heat opening 28, and was surrounded with the alternate long and short dash line in drawing 2 thru/or drawing 4 to arrange sheet after-treatment equipment etc., and the field 39 surrounded with the alternate long and short dash line show the jam processing use space when opening the printer jam processing door 27 and the desk jam processing door 30, and performing jam processing. Moreover, in 45 shown with an alternate long and short dash line in drawing 4, the minimum form width of face and 47 show the crevice for form grasping, and, as for a form conveyance center and 46, 48 shows the delivery side after the completion of record.

[0068]

(Multistage feeding desk)

The multistage feeding desk 5 is an external record material feed zone, it holds record material, separates one record material held at a time, and supplies it toward the record material discharge section 52 prepared in this unit body 51 top face. The laminating of the record material hold tray is carried out to three steps, and inside the unit body 51, the record material hold trays 53 and 54 which held the record material for which it asks at the time of operation, or 55 is chosen alternatively, and operates in it.

[0069]

Supply of the record material to each record material hold trays 53, 54, and 55 is performed to the transverse-plane side of this unit body 51 by pulling out the record material hold trays 53, 54, and 55. Moreover, the desk jam processing door 30 is formed in the side face of the unit body 51 (refer to drawing 3). In addition, although this explanation explains as equipment with which the laminating of the three record material hold trays 53, 54, and 55 was carried out, the multistage feeding desk 5 has the thing of various formats, such as what consists of the record material feed zones and the record material discharge sections which have at least one or a record material hold tray beyond it.

[0070]

Printer equipment 1 is laid on this multistage feeding desk 5, and is united with the multistage feeding desk 5. Sheet after-treatment equipment 4 is also laid and unified on this multistage feeding desk 5.

[0071]

While the koro 10 for migration is formed, the stop section 20 (refer to drawing 7 (A)) as a stop means stop the multistage feeding desk 5 to the scanner rack 8 in an operation with the stop hole 87 (refer to drawing 5) established in the scanner rack 8 that the relative position of the scanner equipment 2 and the printer equipment 1 which are the description of this invention should be regulated is formed in the bottom of the multistage feeding desk 5 so that it may mention later.

[0072]

(Automatic manuscript transport device)

The automatic manuscript transport device 3 conveyed the manuscript \*\*\*\*(ed) on the manuscript set tray 15 toward the manuscript installation base 7 top, and is equipped with a manuscript conveyance means 17 to discharge the manuscript after a scan on the manuscript taking-out tray 16. Moreover, it rotates up by using an equipment back side as the supporting point, and it is constituted so that the near side of equipment may open, so that the manuscript of the sheet object in which automatic supply is impossible may be laid on the

manuscript installation base 7 and can be scanned.

[0073]

(Scanner equipment)

the automatic read mode which scanner equipment 2 supplies the manuscript of a sheet object automatically by the automatic manuscript transport device 3, carries out a sequential exposure scan one sheet at a time, and reads a manuscript image, and the manuscript of a book object -- keeping silence -- by the automatic manuscript transport device 3, the manuscript of the sheet object in which automatic supply is impossible was set by manual actuation, and it has the manual read mode which reads a manuscript image.

[0074]

And an exposure scan is performed in the 1st scan unit 11 and the 2nd scan unit 12 which move mutually the image of the manuscript set on the transparent manuscript installation base 7 along the manuscript installation base 7 by predetermined rate relation, and by leading with the optic of a mirror or image formation lens 13 grade, and carrying out image formation on an optoelectric transducer 14, it outputs, after changing a manuscript image into an electrical signal. Moreover, as shown in drawing 2 and drawing 3, a control panel 35 is formed in the upper part by the side of access of the body of equipment, and the scanner waste heat opening 36 is established in the side face of the body of equipment. In addition, 37 (arrow head) shows a scanner waste heat style.

[0075]

(Scanner rack)

The perspective view of the scanner rack (base material) 8 which supports scanner equipment 2 to drawing 5 is shown. A tooth back is the structure opened wide and this scanner rack 8 becomes a transverse plane and a both-sides side list from square pipe steel. It is formed in the shape of [ rectangular ] a frame, and the support arms 82 and 82 for scanner support are attached in the up both sides of this frame 81, and the rack top plate 83 is attached in them by that tooth-back side between both this support arm 82 and 82. The both-sides section is bent and, as for the rack top plate 83, the bending section is being fixed by the screw stop to the support arms 82 and 82.

[0076]

Crevice 84 -- containing the guide peg (illustration abbreviation) by which protrusion formation was carried out is formed downward in the base of scanner equipment 2, and scanner equipment 2 will be supported by the support arm 82 in the state of installation stable on both the support arms 82 and 82 by making the guide peg of scanner equipment 2 insert in each crevice 84.

[0077]

Moreover, the tie-down plate 85 for attaching in a rack 8 the scanner control unit 9 which is the control section of scanner equipment 2 is attached in the above-mentioned frame 81 which constitutes the tooth back of the scanner rack 8. Although this tie-down plate 85 consists of a sheet metal with which the both-sides section was bent, it is inserted in a frame 81 and that both-sides section is fixed by \*\*\*\*\*, if that fitting location is in a frame 81, it can be changed freely.

[0078]

Two support guide pegs 86 and 86 prolonged horizontally are attached in the lower part of the above-mentioned frame 81. And although later mentioned in a detail, two or more formation of stop hole 87 -- for regulating the mutual location of the printer equipment 1 and the scanner equipment 2 which are the description of this invention is carried out at these support guide pegs 86 and 86.

[0079]

Furthermore, in case printer equipment 1 is contained, the lower tooth back of the multistage feeding unit 5 is contacted, and the specification-part (it is made to stop) material 50 and 50 which regulates that migration in a just before [ the scanner control unit 9 ] location protrudes on these support guide pegs 86 and 86 so that it may not collide with the scanner control unit 9 (refer to drawing 3) prepared in that tooth back.

[0080]

(Scanner control unit)

The scanner control unit 9 with which another unitization of the scanner equipment 2 attached in the tooth-back side of the scanner rack 8 was carried out to drawing 6 is shown. As shown in this drawing, in the rectangular core box, the scanner control unit 9 is formed in the connection connector 91 with scanner equipment 2, the connection connector 92 with printer equipment 1, and the connection connector 93 with a network in nothing

and its end side, and the electric power switch 94 original with a scanner control section, the throttle 95 for memory extension, and the opening 96 for hard disk extension are formed at other end faces.

[0081]

With the image formation equipment constituted as mentioned above, since the scanner control unit 9 by which another unitization was carried out was considered as the configuration connected by the connector and the tie-down plate 85 of the scanner rack 8 was made to support it, the thin shape and miniaturization of scanner equipment 2 are attained.

[0082]

Moreover, first, since printer equipment 1 is a movable configuration relatively to the scanner equipment 2 in the condition of being the configuration that scanner equipment 2 is separated from printer equipment 1, and printer equipment 1 is settled in the bottom of scanner equipment 2, and having been laid in the scanner rack 8, in order to use office space more efficiently, floor occupancy area can be made small.

[0083]

Moreover, by juxtaposition of printer equipment 1 and scanner equipment 2, a person separate to each equipment is accessible to coincidence, and a function can be used more efficiently. And even when submodule equipments, such as sheet after-treatment equipment, etc. are attached and it has advanced features (refer to drawing 12), a check by looking and removal of the form of a paper output tray are easy, and user-friendliness's are good, and can cope with it easily also to troubles, such as jam processing.

[0084]

Furthermore, since printer equipment 1 and scanner equipment 2 are separated, it gets across to printer equipment 1, and the image accuracy of reading can fall, or vibration by the shake at the time of scanning actuation of scanner equipment 2 can prevent deterioration of a quality of printed character as a result so that it cannot give a user insecurity by the shake of scanner equipment 2.

[0085]

The vibration and the impact by migration of printer equipment 1 seem moreover, not to get across to scanner equipment 2, in case the location of printer equipment 1 is adjusted since printer equipment 1 and scanner equipment 2 are separable.

[0086]

Next, drawing 7 (A), (B), and drawing 8 (A) and (B) explain the structure of the stop section (stop means) 20 prepared in pars-basilaris-ossis-occipitalis 5a (parts other than the access space of the printer equipment 1 lower part which is the list function section) of the above-mentioned multistage feeding desk 5. In addition, drawing 7 (A) is the side-face block diagram of the stop section 20, and (B) is a flat-surface block diagram.

[0087]

The stop section 20 has the stop rod 21 which a point inserts in the stop hole 87 formed in the support guide peg 86 (lower part section of a base material) of the scanner rack 8. the hole with which spittle section 21a was formed in the pars intermedia of the stop rod 21, and the lower part was formed in base 5a of the multistage feeding desk 5 -- it is supported possible [ a slide in the vertical direction ] by the support frame 23 with which it escaped to a, and was fitted in the stop condition, and the upper part was set up by base 5a of the multistage feeding desk 5. And between the support frame 23 and spittle section 21a, the energization spring 22 is \*\*\*\* (ed) and the stop rod 21 is energized in the direction of the scanner rack 8 (caudad).

[0088]

The end of the wire 19 almost wound around the pulleys 24 and 24 prepared in the body side of a multistage feeding desk is fixed to the back end (upper limit) of the stop rod 21, and the other end of the wire 19 is being fixed to the discharge knob (discharge means) 25 inserted in the opening 26 prepared in before [ the multistage feeding desk 5 ] side frame 5b free [ migration ]. The discharge knob 25 consists of grasping section 25a held with a finger at the time of discharge, spittle section 25c, and stop section 25b and 25d of guide sections.

[0089]

The appearance of the cross section in stop section 25b of a direction perpendicular to the longitudinal direction of the discharge knob 25 is small formed a little from the configuration of opening 26. Moreover, 25d of guide sections of the discharge knob 25 is formed in the shape of [ of a path a little smaller than radii section 26a of opening 26 ] a cylinder. When the energization force of the energization spring 22 acts through a wire 19, spittle section 25c of the discharge knob 25 contacts before [ the multistage feeding desk 5 ] side frame 5b, and is committing the stopper for making it more than it and the discharge knob 25 not move to the inner direction.

[0090]

Grasp the discharge knob 25 with a finger and it lengthens to the front side (the direction of B in drawing) of image formation equipment. Since the discharge knob 25 will be stopped in the location and a wire 19 will be lengthened if the discharge knob 25 is rotated about 90 degrees (condition of drawing 8 (B)) after stop section 25b of the discharge knob 25 appears from opening 26 in a near side, it escapes from the stop rod 21 from the stop hole 87 of the scanner rack 8.

[0091]

After moving the multistage feeding unit 5 and adjusting appropriately printer equipment 1 and the mutual location in the access direction of the scanner rack 8 in this condition, inverse rotation of the discharge knob 25 is carried out again. If it is operated so that stop section 25b of the discharge knob 25 may go into opening 26, the stop rod 21 is inserted in other stop holes 30 of the scanner rack 10, and printer equipment 1 and the mutual location in the access direction of the scanner rack 8 can be fixed.

[0092]

In addition, although considered as the configuration which makes the stop rod 21 project to the top-face side of the support guide peg 86 of the scanner rack 8 from base 5a of the multistage feeding desk 5, this example may be constituted so that the stop rod 21 may project from the side face of the multistage feeding desk 5 in the medial-surface side of the support guide peg 86 of the scanner rack 8. In this case, what is necessary is just to make the height of the support guide peg 86 of the scanner rack 8 correspond up, so that it may be located rather than base 5a of the multistage feeding desk 5 of drawing 7.

[0093]

If the discharge (to movable equipment side) means 25 is formed in the side which had the koro for moving a floor line like this example After operating the discharge means 25 and canceling printer equipment 1 and the scanner rack 8 in the case of discharge, with a posture (location) as it is, movable equipment (this example printer equipment 1) can be moved, and discharge and a stop activity can be done with very sufficient workability.

[0094]

Moreover, as another example of a stop means and a discharge means, as shown in drawing 9 (A) and (B), you may constitute so that the stop rod 21 may be made to project from the support guide-peg 86 side of the scanner rack 8 to the multistage feeding desk 5. In this case, the same discharge knob 25 is formed in the front-face side of the support arm 82 of the scanner rack 8, the end of the wire 19 laid by the pulley 24 prepared in the interior of the scanner rack 8 in the air at that discharge knob 25 is fixed, and the other end of a wire 19 is fixed to the slider member 33 energized in the direction of arrow-head D with the return spring 31.

[0095]

The slider member 33 has the slide contact side s formed in the shape of a taper, and the lower limit section formed in the shape of [ of the stop rod 21 energized by the slide contact side s with the energization spring 32 at the slider member 33 side (facing down) ] a semi-sphere contacts. The spittle section c for the Johan section of the stop rod 21 penetrating the opening b formed in the top-face side of the support guide peg 86 of the scanner rack 8, and making a projection and its lower part (slider member 33 side) stop the energization spring 32 up is formed, and the stop rod 21 is energized downward. The upper part of the stop rod 21 inserts in 5d of stop openings formed in base 5a of the multistage feeding desk 5 in the state of illustration, and the multistage feeding desk 5 is stopped on the scanner rack 8.

[0096]

By such configuration, if the discharge knob 25 is pulled out (the direction of B in drawing), the hauling force of the return spring 31 will be resisted and the slider member 33 will move in the direction of E in drawing. Thereby, the lower limit of the stop rod 21 energized downward with the energization spring 32 moves in the slide contact side s of the slider member 33, the stop rod 21 descends, and it secedes from 5d of stop openings which the upper part prepared in base 5a of the multistage feeding desk 5. Thereby, the stop condition over the scanner rack 8 of the multistage feeding desk 5 is canceled, and the multistage feeding desk 5 becomes flexibly movable.

[0097]

moreover, the discharge knob 25 -- returning (the direction of C in drawing) -- the slider member 33 moves in the direction of D in drawing according to an operation of the return spring 31, the stop rod 21 is pushed up, the upper part inserts in 5d of stop openings prepared in base 5a of the multistage feeding desk 5, and the multistage

feeding desk 5 is stopped on the scanner rack 8. In addition, 5d of stop openings for stopping the stop rod 21 in this case takes into consideration the successive range of the access direction of the multistage feeding desk 5, and they should just suitable-number-form it in base 5a.

[0098]

As shown in drawing 10 (A) and (B), it can also constitute from a still more nearly another example of a stop means and a discharge means. In this case, the arm section 42 which establish the shaft 40 which can rotate freely, escape on those both sides, and the support guide peg 86 of the scanner rack 8 is made to stop the stop stoppers 40a and 40a, and restrains migration to the shaft orientations of that \*\* 40, and becomes from a plate member at the part in the support guide peg 86 of that shaft 40 is fixed. In addition, drawing 10 (A) is the side-face block diagram of a stop means and a discharge means, and (B) is a flat-surface block diagram.

[0099]

While making it project upward from the opening 89 which fixed the stoppers (stop means) 43, such as hard rubber, on this arm section 42, and formed that stopper's 43 Johan section in the top face of the support guide peg 86 The energization spring 44 which energizes the arm section 42 up is formed in the tip inferior-surface-of-tongue side of the arm section 42. The upper limit section of the stopper 43 which projected upward from opening 89 is made to contact a pressure-welding condition at base 5a of the multistage feeding unit 5, and it is made to stop the multistage feeding desk 5 on the scanner rack 8 according to the static-friction force. And the pedal 41 as a discharge means for a step is formed in the edge of the shaft 40 projected on the outside (opposite side of the side which carries in the multistage feeding desk 5 and printer equipment 1) of the support guide peg 86 at a fixed condition.

[0100]

By such configuration, if the pedal 41 (which printer equipment 1 also moves to coincidence since printer equipment 1 is laid in the upper part) is stepped on on foot in case the multistage feeding unit 5 is moved, a shaft will rotate counterclockwise in drawing 10 (A), the stopper 43 which was doing the pressure welding to base 5a of the multistage feeding unit 5 will descend, and it will estrange from base 5a. Thereby, since a stop with the scanner rack 8 and the multistage feeding unit 5 is canceled and the multistage feeding desk 5 becomes flexibly movable by the koro 10, the multistage feeding unit 5 can be moved to a position in this condition.

[0101]

Therefore, since a pedal 41 is stepped on on foot and a stop with the multistage feeding unit 5 and the scanner rack 8 can be canceled, without using the hand of operating the multistage feeding desk 5, workability improves remarkably. In addition, it may replace with the stopper 43 which consists of hard rubber etc. in this case, and the stop rod 21 which carries out stop close to 5d of stop openings formed in base 5a of the multistage feeding desk 5 like drawing 9 may be adopted.

[0102]

Next, drawing 11 is the explanatory view showing the important height of each unit section, and the dimension of width of face when designing such image formation equipment, and explains the relative correspondence physical relationship of printer equipment 1 (and multistage feeding desk 5) and scanner equipment 2 etc. with this drawing.

[0103]

Although the design of the various mho joule equipments which constitute image formation equipment is performed with standard body height, if it considers in human engineering in order to use it comfortably to the same extent, even if it is the man of height considerably disconnected from standard body height, the suitable arrangement height of equipment will be determined by level Rhine of a shoulder, and the vertical viewing angle.

[0104]

Usually, in order to simplify operability at the time, the user who the top-face height of the printer equipment 1 which has a delivery unit in a top face, and the top-face height of the automatic manuscript transport device 3 and the top-face height of scanner equipment 2 stand mostly, and has them in a posture needs to be in the range which can operate a hand mostly.

[0105]

With the above-mentioned image formation equipment, although the occupancy area of image formation equipment increases a little in consideration of operability, let the printer equipment 1 arranged under scanner equipment 2 be the location out of which it came in the access direction (transverse-plane side) before for a

while rather than scanner equipment 2. And the scanner control unit 9 is arranged to the space by the side of the tooth back of the printer equipment 1 formed by pursuing such operability, and the deployment of space is aimed at to it.

[0106]

the distance printer equipment 1 pushes out at the front rather than scanner equipment 2 -- an operator's height - or since the office environment to install needs to adjust finely, two or more stop holes 87 are established in the support guide peg 86 of the scanner rack 8, and it enables it to fix the multistage feeding desk 5 and printer equipment 1 with this image formation equipment, in the optimal relative position, for example, as shown in drawing 5

[0107]

Moreover, since another unitization of the control section (scanner control unit 9) of scanner equipment 2 was carried out and it attached in the tooth-back location of the printer equipment 1 in the scanner rack 8 with the above-mentioned image formation equipment, In case a stop with the multistage feeding desk 5 and the scanner rack 8 tends to be canceled and it is going to contain the multistage feeding desk 5 and printer equipment 1 to a back side, the printer equipment 1 so that it may not collide with the scanner control unit 9 As mentioned above, the specification-part material 50 is provided in the support guide peg 86 of the scanner rack 8 (refer to drawing 5).

[0108]

That is, if the multistage feeding desk 5 is moved to a back side with printer equipment 1, by the position, the tooth-back lower part of the multistage feeding desk 5 will contact the specification-part material 50, printer equipment (the multistage feeding desk 5 and one) 1 will stop in a just before [ the scanner control unit 9 ] location, and a collision will be avoided. In addition, the configuration which may absorb the impact at the time of a collision, for example, forms it from an elastic member as the specification-part material 50 is desirable.

[0109]

Moreover, with the configuration of above image formation equipment, since both of each waste heat openings of scanner equipment 2 and printer equipment 1 were seen from the transverse plane and arranged on the side face to the right-hand side side face (refer to drawing 2), a weak control section can be protected with heat, without a waste heat style hitting the scanner control unit 9 located in the tooth-back side of printer equipment 1. As a main heat source in printer equipment 1, although there are LSU and an anchorage device, the heat generated in these is led to common printer waste heat opening through the duct prepared in printer equipment 1.

[0110]

Moreover, in the above-mentioned image formation equipment, a user will operate it from a transverse-plane side or left-hand side trouble. A right-hand side side face is the side mainly equipped with the processing door which is the arrangement location of the driving means of a roller etc. if it is printer equipment 1 and is a form conveyance way and scanner equipment 1, and is wide opened at the time of a jam. A user is not made unpleasant with the odor or heat by the waste heat style by packing waste heat opening into such a side that a user does not approach usually.

[0111]

In addition, since an electric power supply is fundamentally intercepted for safety at the time of abnormalities, the fan for waste heat prepared in waste heat opening does not operate, and a waste heat style is not generated. Therefore, even if it packs waste heat opening into a jam processing side, it is satisfactory at all.

[0112]

Below, each dimension shown in drawing 11 by reference is explained briefly.

[0113]

Hy : height by which a printing important section is discharged (Hp+Hd)

Hg1: The manuscript set and discharge height at the time of automatic manuscript transport-device use

Hg2: The manuscript set and discharge height at the time of platen use

Ha : height of an automatic manuscript transport device

Hs : height of a scanner

Hp : height of a printer

Hd : height of a desk

Da1: Space where a sheet guide, support of a roller, and a cabinet are arranged (depth dimension of A1 9)

[http://www4.ipdl.ncipi.go.jp/cgi-bin/tran\\_web.cgi\\_ejje?u=http%3A%2F%2Fwww4.ipdl.ncipi.go....](http://www4.ipdl.ncipi.go.jp/cgi-bin/tran_web.cgi_ejje?u=http%3A%2F%2Fwww4.ipdl.ncipi.go....) 12/5/2005

Da2: The depth dimension of the space (A2) concerning sheet conveyance of an automatic manuscript transport device

Da3: The depth dimension of the configuration space (A3) of the driving means of a roller etc.

Ds1: The depth dimension of control-panel configuration space (S1)

Ds2: The depth dimension of the space (S2) concerning sheet conveyance of a scanner

In fact, the scanning zone of a manuscript, the set region of a manuscript, the arrangement region of - scan means, etc. It corresponds.

[0114]

Ds3: The depth dimension of the configuration space (S3) of the driving means of a scan means

Dp1: Support of the sheet conveyance means of printer equipment 1, or an image formation means, and driving means Depth dimension of the space (P1) concerning arrangement

Dp2: Space concerning the sheet conveyance means and image formation of printer equipment 1 (P2) Depth dimension

Dp3: Support of the sheet conveyance means of printer equipment 1, or an image formation means, and driving means Depth dimension of the space (P3) concerning arrangement

Dd1: Support of the sheet conveyance means of a desk 10, or an image formation means, attachment-and-detachment actuation, before Depth dimension concerning arrangement of a side gear vignette

Dd2: The depth dimension of the space (D2) concerning sheet conveyance of a desk 10

Dd3: Support of the sheet conveyance means of a desk 10, or an image formation means, and a driving means The depth dimension of the space (D3) concerning arrangement

Dh : depth dimension of the working-level month space of form ejection

Dm : in consideration of operability, printer equipment 1 and scanner equipment 2 have been arranged up and down. Depth dimension of the space which becomes useless to a case

So : space of a working-level month

Sd : in consideration of operability, printer equipment 1 and scanner equipment 2 have been arranged up and down. Space which becomes useless to a case

GMAX : manuscript of the maximum width

GMIN : manuscript of the minimum width of face

PMAX : form of the maximum width

PMIN : form of the minimum width of face

h : the conveyance center of a manuscript

i : conveyance center of a form

Next, the image formation equipment concerning the operation gestalt from which this invention differs in drawing 12 is shown. In this case, sheet after-treatment equipment 4 is further connected to the configuration of drawing 1. When sheet after-treatment equipment 4 is carried, the junction conveyance unit 6 for leading the form outputted from the delivery unit prepared in the upper part of printer equipment 1 to sheet after-treatment equipment 4 is also included in coincidence. Below, sheet after-treatment equipment 4 and the junction conveyance unit 6 are explained.

[0115]

(Sheet after-treatment equipment)

Sheet after-treatment equipment 4 performs after treatment for the record material on which the image discharged from printer equipment 1 was recorded to reception and record material. As after treatment, the equipment illustrated here although stay bull processing, sorting application, etc. occur is the configuration equipped with three paper output trays 141, 142, 143, changes discharge tray 141 - if needed, and can discharge a sheet. A lot of sheets can be mounted on each tray.

[0116]

(Junction conveyance unit)

The junction conveyance unit 6 is a conveyance unit for introducing the record material on which the image with which the delivery unit 48 of printer equipment 1 is equipped, and which is discharged from printer equipment 1 was recorded toward the sheet after-treatment equipment 4 located in the downstream of printer equipment 1.

[0117]

Moreover, in the middle of the record material conveyance path 61 of this junction conveyance unit 6, record

[http://www4.ipdl.ncipi.go.jp/cgi-bin/tran\\_web\\_cgi\\_ejje?u=http%3A%2F%2Fwww4.ipdl.ncipi.go....](http://www4.ipdl.ncipi.go.jp/cgi-bin/tran_web_cgi_ejje?u=http%3A%2F%2Fwww4.ipdl.ncipi.go....) 12/5/2005

material was temporarily led to the top face of this unit, and it has the record material maintenance side 62 which carries out guidance support so that switchback conveyance of the record material may be carried out toward a record material double-sided transport device (illustration abbreviation).

[0118]

In addition, although the koro 10 was formed in the multistage feeding desk 5 side and being turned on the migration side in the above-mentioned explanation, the configuration which forms the koro 10 in the scanner rack 8 side, and makes the scanner equipment 2 side a migration side is also possible. However, since such image formation equipment turns a tooth-back side to a wall and is installed in many cases, its need of the direction considered as the configuration to which the printer equipment 1 side pulled out at a transverse-plane side (the access direction) is moved is usually high.

[0119]

[Effect of the Invention]

According to this invention, the following effectiveness is acquired.

[0120]

(1) A manuscript reading function part and the list function section are separated, and it is under a manuscript reading function part.

It is the configuration that it is alike and the list function section is settled, and to the manuscript reading function part in the condition of having been laid in the base material, since the list function section is a movable configuration relatively, the following effectiveness is done so.

[0121]

(A) In order to use office space more efficiently, image formation equipment with a small floor occupancy area can be formed.

[0122]

(B) Printer equipment and scanner equipment are juxtaposed, a person separate to each equipment is accessible to coincidence, and a function can be used more efficiently.

[0123]

(C) Even when submodule equipments, such as sheet after-treatment equipment, etc. are attached and it complicates, a check by looking and removal of the form of a paper output tray are easy, and user-friendliness's are good, and can cope with it easily also to troubles, such as jam processing.

[0124]

(D) The image accuracy of reading does not fall or vibration by the shake at the time of scanning actuation of scanner equipment seems to get across to a printer equipment side, and not to give a user insecurity by the shake of scanner equipment, since the printer equipment and scanner equipment side is separated.

[0125]

(E) The impact of migration of printer equipment seems not to get across to scanner equipment furthermore, since it is the configuration that printer equipment and scanner equipment are separable.

[0126]

And it is since the list function section and a base material are stopped with a stop means,

(F) The mutual location by the side of scanner equipment and printer equipment is fixable to a stop condition in the good suitable location of operability.

[0127]

And a stop means is since the lower part outside the access space of the list function section and the lower part section of a base material are stopped,

(G) It is not interfered at all on the layout of a device, and the expandability of a function is not checked.

[0128]

(2) Since modification of the relative stop location of the access direction of the above-mentioned list function section and a manuscript reading function part is possible for the above-mentioned stop means,

(H) Adjustment of the mutual location of printer equipment and scanner equipment is attained, the adjustment according to the height of a user's back is attained, and good operability can be secured.

[0129]

(3) Since the specification-part material for avoiding the collision with the list function section and other function parts was prepared,

(I) Since the mutual approach location limit of the list function section and other function parts can be clearly



set up by specification-part material, the conditions on the layout which can secure operability and can avoid breakage of the device by the collision with other function parts can be set up clearly.

[0130]

(4) Since a discharge means to make a stop with the above-mentioned base material and the list function section by the above-mentioned stop means cancel was formed in the upper part of the above-mentioned base material, it is easy to carry out discharge actuation, and is easy to carry out adjustment of the mutual location of the list function section and a manuscript reading function part, and operability improves.

[0131]

(5) By that which forms a discharge means in the side in which the koro for migration is prepared, since it can move to discharge actuation and coincidence as it is at migration actuation, operability improves remarkably.

[0132]

(6) In the condition of having held the list function section by hand since the operational discharge means was established on foot, since discharge of a stop means can be performed with foot, workability improves notably.

[Brief Description of the Drawings]

[Drawing 1] It is the sectional view showing the whole image formation equipment configuration concerning the operation gestalt of this invention.

[Drawing 2] It is the front view of this image formation equipment.

[Drawing 3] It is this side elevation.

[Drawing 4] It is the A-A line view sectional view of this drawing 2.

[Drawing 5] It is the perspective view of this base material.

[Drawing 6] It is the perspective view of this scanner control section.

[Drawing 7] It is the configuration explanatory view of this stop means.

[Drawing 8] It is the strabism explanatory view of this discharge means.

[Drawing 9] \*\*\*\*\* -- it is the configuration explanatory view of a stop means and a discharge means.

[Drawing 10] \*\*\*\*\* -- it is the configuration explanatory view of another discharge means.

[Drawing 11] It is the explanatory view of the relative-position relation between this printer equipment and scanner equipment.

[Drawing 12] It is the sectional view showing the whole image formation equipment configuration concerning the operation gestalt from which this invention differs.

[Description of Notations]

1-list function section

2-manuscript reading function part

8-base material

Koro for 10-migration

20-stop means

25-discharge means

41-discharge means

43-stop means

50-regulation means

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[Translation done.]